The Maltings Flora and Fauna Assessment Report

Maltings Holdings Pty Ltd

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Template 2.8.1

Contents

List of Figures

List of Tables

Abbreviations

Abbreviation	Description
BC Act	*Biodiversity Conservation Act 2016*
BDAR	Biodiversity Assessment Development Report
BOS	Biodiversity Offset Scheme
BVM	Biodiversity Values Map
CEMP	Construction Environmental Management Plan
DA	Development Application
DCP	Development Control Plan
ELA	Eco Logical Australia Pty Ltd
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environment Protection & Biodiversity Conservation Act 1999*
PMST	Protected Matters Search Tool
FM Act	*Fisheries Management Act 1994*
GPS	Global Positioning System
HBT	Hollow-bearing Tree
KTP	Key Threatening Processes
LEP	Local Environment Plan

Abbreviation	Description
LGA	Local Government Area
MNES	Matters of National Environmental Significance
OEH	Office of Environment and Heritage
PCT	Plant Community Type
SERSWMP	South East Strategic Weed Management Plan (2017-2022)
SAII	Serious and Irreversible Impacts
SEPP	State Environmental Planning Policy
SIC	Significant Impact Criteria
SIS	Species Impact Statement
TEC	Threatened Ecological Community
WoNS	Weeds of National Significance
WM Act	*Water Management Act 2000*
WLEP	Wingecarribee Local Environmental Plan 2010

Updates to existing Flora and Fauna Assessment 2024

On 13 May 2022, development consent (DA20/1400) was granted by the NSW Land and Environment Court for a staged development application (DA) relating to 2 Colo Street, Mittagong, commonly known as "The Maltings" (the site).

The approved proposal consists of a development concept for adaptive re-use of the site, and a detailed design for alterations and additions to the former malthouses (M1, M2, Southern Sheds and M3), redevelopment of Maltster's Cottage and construction of a new Northern Shed to accommodate a range of uses in multi-purpose spaces for art, exhibitions, functions, recreation activities and performances, as well as construction of a new hotel with ancillary uses (M4). The detailed design scheme encompasses site works, including rehabilitation of the riparian corridor along Nattai River. The approved proposal also includes a development concept for potential residential and/or visitor accommodation (M5/M6).

The proponent is seeking to amend the existing development consent (DA20/1400) for adaptive re-use of the site via two separate but related applications that are prepared concurrently:

- A DA to alter the design of the alterations, additions and adaptive re-use of Maltings M3, and amendment to the façades and interiors of the M4 hotel.
- A section 4.56 modification to revise the design of the alterations, additions and adaptive re-use of Maltings M1, M2 and the Southern Sheds; and the design of the new Northern Shed and the redevelopment of Maltster's Cottage.

The original Flora and Fauna Assessment was prepared by ELA for Halcyon Hotels in 2020 (ELA, 2020). The FFA is now over three years old, therefore, re-assessment of the study area was required to ensure validity of the report to current conditions. ELA understands that no additional trees are proposed for removal, as there are no changes to the building footprint. This report summaries the reassessment of the study area undertaken for the modification application (s4.56) for Maltings Holdings Pty Ltd.

An inspection of the study area was undertaken by ELA senior ecologist Stacey Wilson on 16 January 2024. The focus of the inspection was to ensure that the condition of the vegetation, particularly the threatened ecological community had remained the same. The survey recorded any opportunistic threatened flora or fauna sightings, and to identify any threatened fauna habitat, not previously present.

The condition of the vegetation on site had not substantially changed since the previous assessment and the mapped boundaries showing the differences in vegetation communities was accurate. The site inspection confirmed the presence of the previously identified threatened ecological community (TEC) Southern Highlands Shale Woodland. The condition of the TEC met the requirements for its listing under as an endangered ecological community under the NSW *Biodiversity Conservation Act 2016* (BC Act) and a critically endangered ecological community under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). No threatened flora species were identified during the survey.

One significant finding of the field survey was the confirmation of an occupied camp of *Pteropus poliocephalus* (Grey-headed Flying-fox). This species is listed as a vulnerable species under the BC Act and vulnerable under the EPBC Act. There were approximately 50 to 75 individuals occupying the camp at the time of survey.

No vegetation is proposed to be removed under the modification application (s4.56), however the Flora and Fauna Assessment was updated to include information, where relevant, for the Grey -headed Flying Fox. This includes a revised Test of Significance under the BC Act for GHFF. This species is also listed as a Matter of National Environmental Significance, therefore the Assessment of Significance under the EPBC Act for Grey-headed Flying-fox was also updated to include the finding of the occupied camp. A summary of the revisions made to the FFA in 2024 and where to find them within this report is provided in Table 1.

The vegetation in the vicinity of Maltster's House was inspected. The majority of the vegetation to the south of the House is exotic, though there are two individual *Acacia decurrens* trees which are native. There are no restrictions under the BC Act to removing the exotic trees, though further assessment may be required if native species are proposed for removal. It is understood no native vegetation is proposed to be removed.

Table 1: Revisions made to the FFA 2024 and where addressed within the report

Section of this report	Revision
Section 1.3 Proposed works	Updated project description added.
Section 4.1.3 Biodiversity Values Map	Included statement that areas of the site are now on the BV Map. Figure added.
Section 5.1.1 Removal of native vegetation	Included discussion on potential removal of vegetation near Maltsters House.
Section 5.1.3 Removal of potential habitat for threatened species	Included statement for how the removal of vegetation under a VMP may affect Grey-headed Flying-fox (GHFF)
Section 5.2 Indirect impacts	Included statement as to how Indirect impacts may affect the GHFF.
Section 5.3.2 Offset Scheme Thresholds – Biodiversity Values Land Map	Included statement discussing occurrence of areas of land on the BV Map and implications for approvals.
Section 5.4 *Environmental Protection and Biodiversity Conservation Act 1999*	Updated to include presence of GHFF.
Section 6: Mitigation measures	Listed mitigation measures specific to GHFF
Section 7: Conclusions and recommendations	Included recommendation that mitigation measures should be adopted for GHFF, and added reference to BV Map.
Appendix A: Species identified within the study area	Inclusion of GHFF camp
Appendix B: Likelihood of occurrence	Inclusion GHFF to 'present within the study area'
Appendix C: Tests of Significance C2	Revision of the Test of Significance for GHFF.
Appendix D: EPBC Assessment D2	Revision of the Test of Significance for GHFF and recommendation for referral to Commonwealth.

Executive Summary

Eco Logical Australia Pty Ltd (ELA) was commissioned by Maltings Holdings Pty Ltd to prepare a flora and fauna assessment for the proposed redevelopment of the Maltings site at 2 Colo Street, Mittagong (Lot 21 DP 1029384) in the Local Government Area (LGA) of Wingecarribee Shire Council. Maltings Holdings Ltd is proposing to refurbish existing buildings on site; construct new hotel accommodation, swimming pool, gymnasium, private residential development and associated infrastructure.

This document reports on the ecological values within the study area and considers the impacts from the proposed development in relation to current environmental planning legislation.

The study area currently comprises cleared land, derelict buildings and native remnant trees, planted native and exotic trees and riparian vegetation. The majority of the proposed works, where the impact is occurring, incorporates the current buildings pads, and cleared and exotic areas.

The Department of Planning, Industry and Environment (DPIE) vegetation mapping has previously mapped the vegetation on site as Southern Highlands Shale Woodland, which is listed as an endangered ecological community under the *Biodiversity Conservation Act 2016* (BC Act) and a critically endangered ecological community under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). The field survey confirmed the presence of Southern Highlands Shale Woodland within the study area.

The proposal will not have an impact on any areas shown on the Biodiversity Value Map (accessed 07/02/2020) under the *Biodiversity Conservation Regulation 2017*.

One threatened ecological community Southern Highlands Shale Woodland was identified within the study area. Southern Highlands Shale Woodland (SHSW) is listed as an endangered ecological community under the NSW *Biodiversity Conservation Act 2016*. SHSW is also listed as critically endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. The SHWS on site meets the condition criteria for B2 moderate condition under the EPBC Act.

Approximately 0.1 ha of SHSW and 0.02 ha of exotic vegetation will be removed as a result of the proposed development. The study area is zoned R2 Low Density Residential with a minimum lot size of 700 m^2. This amount of clearing does not exceed the area clearing threshold of 0.25 ha of native vegetation associated with a minimum lot size for a property which is less than 1 ha.

No threatened flora or fauna species were recorded during field survey. However, the native and exotic vegetation and derelict buildings within the study area may provide potential habitat for threatened fauna species which were not recorded during the field survey; it should be noted that no targeted microbat survey was undertaken. Tests of Significance under the BC Act were undertaken for the following threatened ecological communities and threatened species which are likely to utilise the study area:

- Southern Highlands Shale Woodland
- *Falsistrellus tasmaniensis* (Eastern False Pipistrelle)
- *Miniopterus orianae oceanensis* (Large Bent-winged Bat)

- *Scoteanax rueppellii* (Greater Broad-nosed Bat) and
- *Pteropus poliocephalus* (Grey-headed Flying Fox).

The assessments concluded that the proposed development is unlikely to have a significant impact on any threatened ecological community or species above. Therefore, the Biodiversity Offsets Scheme will not be triggered by the proposed development and a Biodiversity Development Assessment Report (BDAR) will not be required.

Southern Highlands Shale Woodland and Grey-headed Flying Fox (GHFF) are also listed as a Matter of National Environmental Significance (MNES) under the EPBC Act. The native and exotic vegetation on site may provide potential foraging habitat and sheltering habitat for these species. As such, the Significant Impact Criteria were applied to SHSW and GHFF.

Following consideration of the administrative guidelines for determining a significant impact under the EPBC Act, it is considered that the proposed development may cause a local population of Grey-headed Flying Fox to decline and therefore referral to the Commonwealth is recommended for this MNES.

The proposed development involves remediation works on 'waterfront land' of Nattai River. Waterfront land is defined as 40 m from the highest bank of any creek line. The works are located on 'waterfront land' and therefore the development is likely to be Integrated Development and will require a Controlled Activity Approval from NRAR under s91 of the WM Act 2000.

Under the new Koala State Environmental Planning Policy (SEPP) commencing on 1 March 2020, the Tier 1 assessment concluded that there will be direct impacts to Koala habitat on the Koala. As such a Koala Habitat Assessment is required as part of this DA.

No obstruction of fish passage or dredging or reclamation occurs is expected as part of the proposed works. Therefore, a permit under the Fisheries Management Act is not considered necessary.

Mitigation measures are provided to reduce impacts to threatened species and have been provided in Section 6.

1. Introduction

Eco Logical Australia Pty Ltd (ELA) was commissioned by Maltings Holdings Pty Ltd to prepare a flora and fauna assessment to accompany a Development Application for the proposed redevelopment of the Maltings site at 2 Colo Street, Mittagong (Lot 21 DP 1029384) in the Wingecarribee Shire Council (WSC) Local Government Area (LGA) (Figure 1).

1.1 Purpose of this report

The aim of this report is to address impacts to threatened species and its habitat, ecological communities and populations listed under the NSW *Biodiversity Conservation Act 2016* (BC Act), NSW *Fisheries Management Act 1994* (FM Act), and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

1.2 Study area description

The Maltings site hereinafter referred to as the study area, encompasses all of lot 21 DP 1029384 (Figure 1). The study area is located approx. 120 km southwest of Sydney, 600 m north east of Mittagong Railway Station, 100 m from the Old Hume Highway and is on the south-eastern fringe of the Mittagong Township.

The study area is currently zoned by the Wingecarribee Local Environmental Plan (WLEP) as R2 Low Density Residential. The land comprises cleared land, derelict buildings and native remnant trees, planted native and exotic trees and riparian vegetation. The study area is dissected diagonally by the Nattai River and has established adjoining riparian zones. The study area comprises major malthouse buildings on the western side of the Nattai River and fronting the Main Southern Railway line. In addition to these dominant structures there are a number of ancillary/out buildings which include large barley stores, sheds, a service building complex (engine rooms and pumps) and a company cottage and bridges over Nattai River.

1.3 Proposed works

The proposed predevelopment of the study area is currently in preparation as part of a Development Application (DA) for the site (Figure 2). The proposal will comprise:

- Limited refurbishment and adaption of existing buildings on site; and
- new hotel accommodation, swimming pool and gymnasium (within and/or adjoining the existing buildings); and
- potential 'performance' space(s) (within and/or adjoining the existing buildings); and/or
- potential private residential development for one or more households (to be confirmed during planning process).
- Associated infrastructure, including roads, bridges, informal pathways, parking lot(s), etc.

UPDATE 2024

On 13 May 2022, development consent (DA20/1400) was granted by the NSW Land and Environment Court for a staged development application (DA) relating to 2 Colo Street, Mittagong, commonly known as "The Maltings" (the site).

The approved proposal consists of a development concept for adaptive re-use of the site, and a detailed design for alterations and additions to the former malthouses (M1, M2, Southern Sheds and M3), redevelopment of Maltster's Cottage and construction of a new Northern Shed to accommodate a range of uses in multi-purpose spaces for art, exhibitions, functions, recreation activities and performances, as well as construction of a new hotel with ancillary uses (M4). The detailed design scheme encompasses site works, including rehabilitation of the riparian corridor along Nattai River. The approved proposal also includes a development concept for potential residential and/or visitor accommodation (M5/M6).

The proponent is seeking to amend the existing development consent (DA20/1400) for adaptive re-use of the site via two separate but related applications that are prepared concurrently:

- A DA to alter the design of the alterations, additions and adaptive re-use of Maltings M3, and amendment to the façades and interiors of the M4 hotel.
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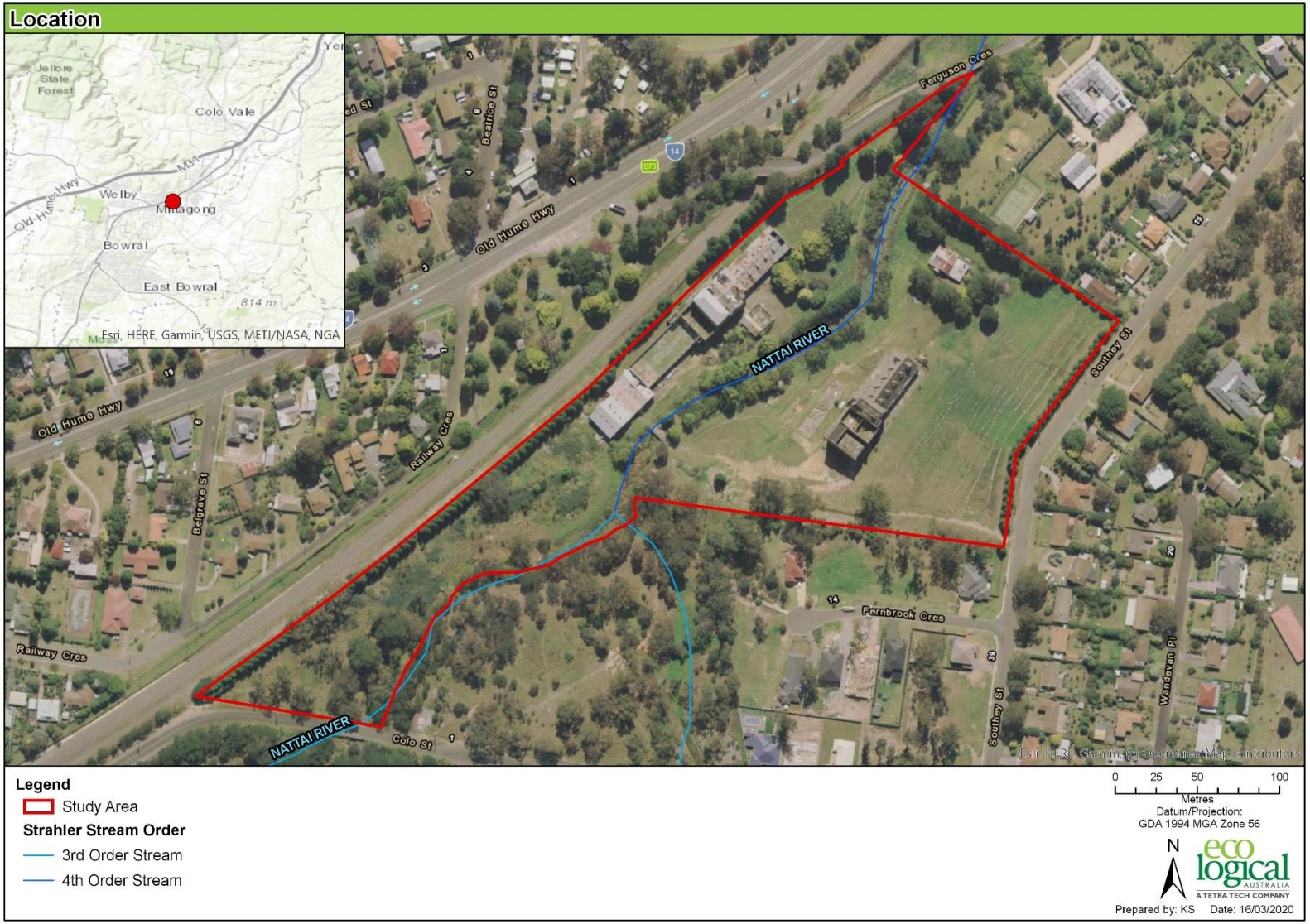

Figure 1: Location of the study area

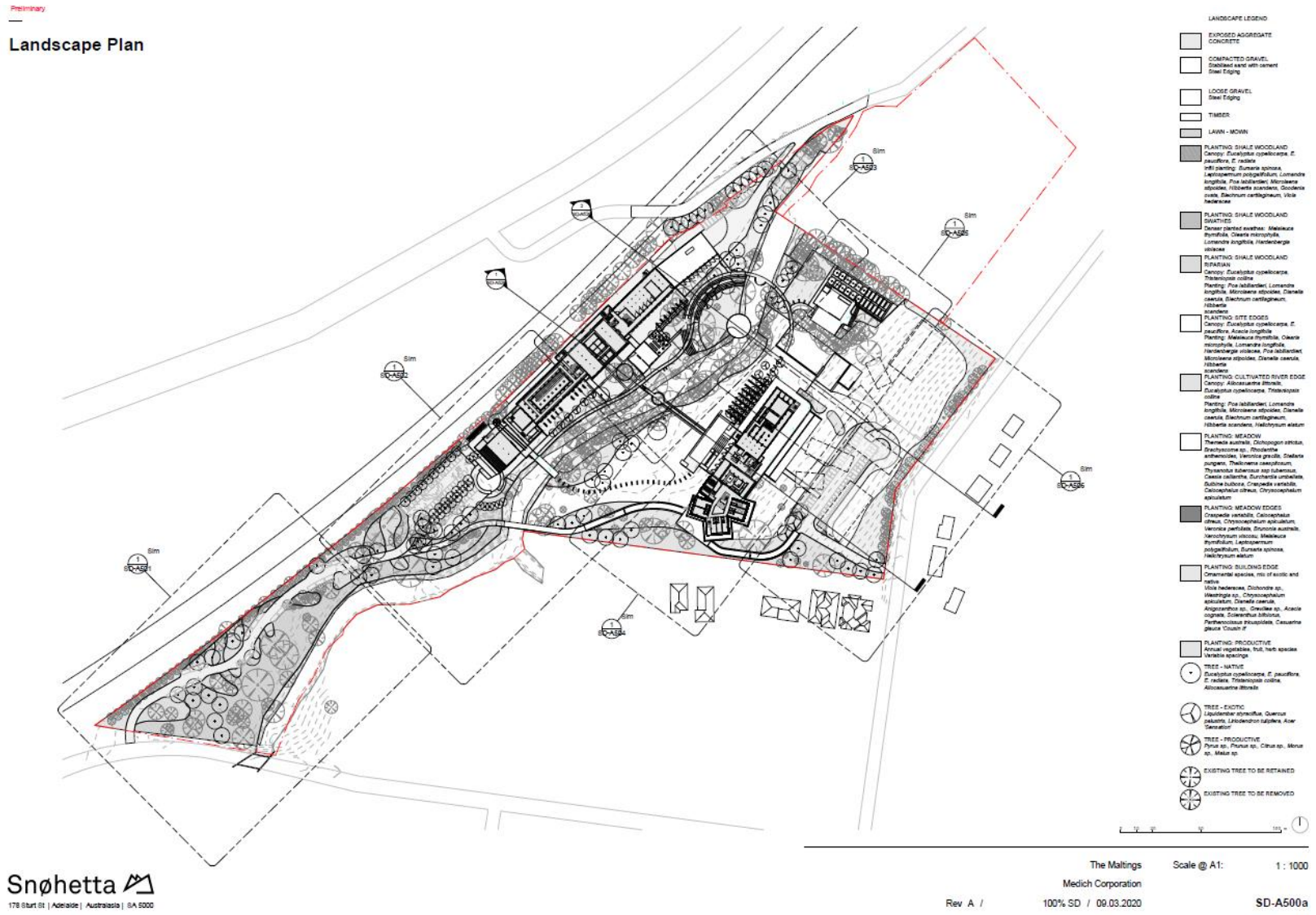

Figure 2: Study area plan

2. Legislative Context

Table 2: Relevant legislative context for the flora and fauna assessment

Name	Relevance to the project
	Commonwealth
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	The Commonwealth EPBC Act aims to protect Matters of National Environmental Significance (MNES), including vegetation communities and species listed under the EPBC Act. If a development is likely to have a significant impact on MNES, it is likely to be considered a 'Controlled Action' by the Commonwealth and requires assessment and approval by the Commonwealth in order to proceed Matters of National Environmental Significance (MNES) have been identified on or near the development site. This report assesses impacts to MNES and concludes that the development is not likely to have a significant impact on MNES. There are seven MNES that are triggers for Commonwealth assessment and approval. These are: 1. World Heritage properties 2. National Heritage places 3. Ramsar wetlands of international importance 4. Nationally threatened species and communities 5. Migratory species 6. Nuclear actions 7. Commonwealth marine environment. Threatened species and ecological communities are listed under Part 13, Division 1, Subdivision A of the EPBC Act. Migratory species are listed under Part 13, Division 2, Subdivision A of the Act. One threatened fauna species, *Pteropus poliocephalus* (Grey-headed Flying-fox), may utilise the development site on a seasonal basis for foraging habitat. Through the application of the Significant Impact Criteria, consideration of whether a significant impact will be likely to occur must be undertaken. The removal of foraging habitat is unlikely to significantly impact this species.
	NSW
Environmental Planning and Assessment Act 1979 (EP&A Act)	The proposed development requires consent under the Wingecarribee Local Environmental Plan 2010 and is to be assessed under Part 4 of the EP&A Act. Tests of significance for impacts to threatened ecological communities, species, or endangered populations, have been prepared in accordance with s1.7 of the Act.

Name	Relevance to the project
Biodiversity Conservation Act 2016 (BC Act)	The *Biodiversity Conservation Act 2016* outlines the assessment requirements to determine whether proposed development (Part 4 of the EP&A Act) is likely to significantly affect threatened species or ecological communities, or their habitats under section 7.3, and whether the Biodiversity Offsets Scheme (BOS) will be triggered. Development that exceed the BOS thresholds as set out in Part 7 of the Act and Part 7 of the *Biodiversity Conservation Regulation 2017* (BC Regulation) are required to undertake an assessment in accordance with the Biodiversity Assessment Method (BAM), including the preparation of a Biodiversity Development Assessment Report (BDAR). Approximately 0.1 ha of native vegetation is expected to be impacted by the development. This vegetation is not shown on the Biodiversity Values Map. Therefore, the BOS would not be triggered and a Biodiversity Development Assessment Report (BDAR) would not need to be prepared. Tests of significance for the impact to threatened species in accordance with s7.3 of the Act have been undertaken for the proposed works. A significant impact is not likely to result and an assessment under the BAM is not required.
Biodiversity Conservation Regulation 2017	The Biodiversity Values Map (BV Map) identifies land with high biodiversity value, as defined by the *Biodiversity Conservation Regulation 2017*. The study area does not contain land identified on the BV Map (accessed 07/02/2020).
Fisheries Management Act 1994	The FM Act governs the management of fish and their habitat in NSW. The Schedules of the Act list key threatening processes and threatened species. The FM Act 1994 regulates the provision of permits required in relation to harm to protected marine vegetation (seagrass, macroalgae, mangroves and saltmarsh), dredging, reclamation or obstruction of fish passage on or adjacent to Key Fish Habitat (KFH). This includes direct and indirect impacts, whether temporary or permanent. KFH has been mapped along the Nattai River within the study area. No obstruction of fish passage or dredging or reclamation occurs is expected as part of the proposed works. Therefore, a permit is not considered necessary.
NSW Biosecurity Act 2015	Under the *Biosecurity Act 2015*, Priority weeds have been identified for local government areas and assigned strategies to contain, remove or manage. Occupiers of land (this includes owners of land) have responsibility for taking appropriate action for priority weeds on the land they occupy. The site contains weeds listed under the *Biosecurity Act 2015*.
Water Management Act 2000 (WM Act)	The object of the WM Act is to provide for the sustainable and integrated management of water sources of the State for the benefit of both present and future generations. Among the objects relating to biodiversity are: to apply the principles of ecologically sustainable development, and to protect, enhance and restore water resources, their associated ecosystems, ecological processes and biological diversity and their water quality. The proposed development involves remediation works on 'waterfront land' of Nattai River. Waterfront land is defined as 40 m from the highest bank of any creek line. The works are located on 'waterfront land' and therefore the development is likely to be Integrated Development and will require a Controlled Activity Approval from NRAR under s91 of the WM Act 2000.
	Planning Instruments

Name	Relevance to the project
Wingecarribee Local Environment Plan 2010 (LEP 2010)	The study area is zoned as R2 (Low Density Residential) under the Wingecarribee LEP 2010. The study area has been mapped on the Wingecarribee LEP Natural Resources Sensitivity Map as Riparian Land Category 1 - Environmental Corridor (within 50 metres from the top of stream bank on each side). The LEP requires Development Applications to consider specific matters relating to water quality and riparian land.
Mittagong Township Development Control Plan (DCP) 2010	The DCP aims to consider matters such as the development on flood liable land, vegetation management including tree preservation, ecologically sustainable development for development applications and that any development within the Maltings neighbourhood shall incorporate improvements to the ecological value and water quality and of Nattai River and its riparian zone. The proposed development must take these matters into consideration.
State Environmental Planning Policy (Koala Habitat Protection) 2019 (effective 1 March 2020) State Environmental Planning Policy (Biodiversity and Conservation) 2021	This SEPP aims to encourage the conservation and management of areas of natural vegetation that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline. The proposed development is located within an LGA to which the Koala Habitat Protection SEPP applies, and the development site is mapped on the Koala Development Application Map (accessed 4 March 2020). The development site also contained feed tree species such as *Eucalyptus cypellocarpa* (Monkey Gum), *Eucalyptus piperita* (Sydney Peppermint), *Eucalyptus quadrangulata* (White-topped Box) and *Eucalyptus radiata* (Narrow leaved Peppermint) and there have been 103 previous records of Koala within 5 km of the development site within the past 18 years. The proposed redevelopment was assessed under the Tier 1 - Low or no direct impact development criteria. The assessment concluded that there will be direct impacts to Koala habitat on the Koala. As such a Koala Habitat Assessment is required as part of this DA. SEPP (Biodiversity and Conservation) 2021 is also considered for the new DA. Under Section 4.9 of the SEPP, the SEPP applies to the land, as the land is greater than 1 ha and does not have an approved Koala Plan of Management. A Koala Assessment Report has been prepared to satisfy the requirements of the SEPP.

3. Methodology

3.1 Database Searches and Literature Review

Database records and relevant literature pertaining to the ecology of the study area and surrounding environs were reviewed. The material reviewed included:

- Previous vegetation mapping:
  - Department Industry, Planning and Environment (DPIE 2010)
- BioNet/Wildlife Atlas database (Department of Industry Planning and Environment (DPIE 2020)
- NSW Government Biodiversity Values Map (accessed 3 March 2020)
- BioNet Vegetation Classification System
- Key Fish Habitat Wingecarribee Map
- Department of Industry Planning and Environment (DPIE 2020) Hydroline
- Aerial photographs
- EPBC Act Protected Matters Search Tool (DoEE 2019)
- Local government planning instruments
  - Wingecarribee Local Environmental Plan 2010
  - Mittagong Township Development Control Plan 2019.

A search of BioNet (DPIE 2019) was performed on 5 September 2019 and a search of the EPBC Act Protected Matters Search Tool on 21 October 2019, using a radius of 5 km around the coordinates --34.44931 150.45796.

3.2 Field Survey

A field survey was conducted by ELA ecologists Mike Lawrie and Stacey Wilson on 9 October 2019 to verify the presence of native vegetation, TECs, and threatened species and / or their habitat. Where the boundaries of vegetation communities differed from existing vegetation mapping, these were modified on hard copy maps and marked with a hand-held Global Positioning System (GPS).

The location and condition of habitat features such as water bodies and important habitat trees were recorded with a handheld GPS. Bird species and other fauna were recorded opportunistically.

Two Biodiversity Assessment Method (BAM) vegetation integrity plots were undertaken within the study area. A list of flora and fauna species recorded within the study area was collected during the field survey and is provided in Appendix A.

3.3 Survey Limitations

This assessment was not intended to provide an inventory of all species present across the study area but instead an overall assessment of the ecological values of the study area with emphasis on threatened species, TECs and key fauna habitat features. It is important to note that some species may not have been detected on the study area during the inspection as they may be cryptic or seasonal and only detectable during flowering or during breeding. In this case the likelihood of their occurrence on site has been assessed based on the presence of potential habitat.

4. Results

4.1 Database Searches and Literature Review

4.1.1 Threatened Ecological Communities, Flora, fauna and Migratory Species

A review of the BioNet Atlas and EPBC Act protected matters search tool identified six threatened ecological communities, 29 threatened flora and 51 threatened fauna (including migratory species) either known or considered likely to occur in the development area (Figure 5 and Figure 6).

Many of the threatened flora and fauna species excluded from further consideration are purely marine (e.g. fish and marine mammals) or estuarine to shoreline (e.g. waders) species that are not capable of utilising the site or study area, and thus are not likely to be affected by the development. The likelihood of the remaining species to occur is reviewed in (Appendix B).

Threatened ecological communities either known or considered likely to occur within 5 km of the study area include:

- Coastal Upland Swamps in the Sydney Basin Bioregion
- Robertson Rainforest in the Sydney Basin Bioregion
- Southern Highlands Shale Woodland of the Sydney Basin Bioregion
- Southern Highlands Shale Forest and Woodland in the Sydney Basin Bioregion
- Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.

4.1.2 Vegetation Communities Mapping (DPIE, 2010)

A review of the available vegetation mapping (DPIE, 2010) indicated one threatened ecological community occurring within the study area, Southern Highlands Shale Woodland (Figure 4)

4.1.3 Biodiversity Values Map

The study area does not contain areas identified on the NSW Government Biodiversity Values Map (BV Map), as verified on 3 March 2020.

2024 UPDATE

The study area now contains areas identified on the NSW Government Biodiversity Values Map (BV Map) (Figure 3). These areas were added to the BV Map on 29/03/2023.

Figure 3: Biodiversity Values Map added 29 March 2023.

Figure 4: Previous vegetation mapping (DPIE 2010)

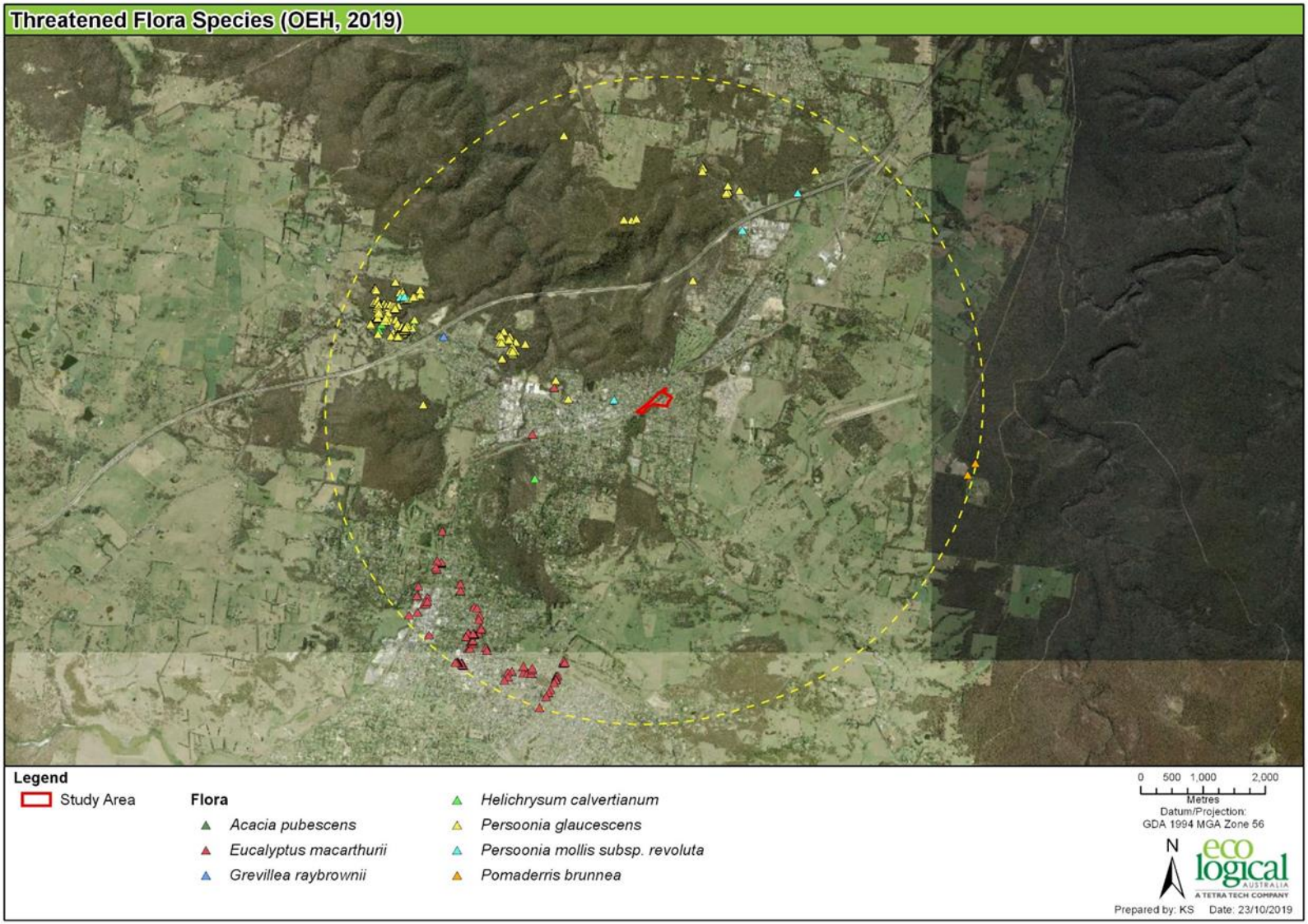

Figure 5: Threatened flora records within 5 km of the study area

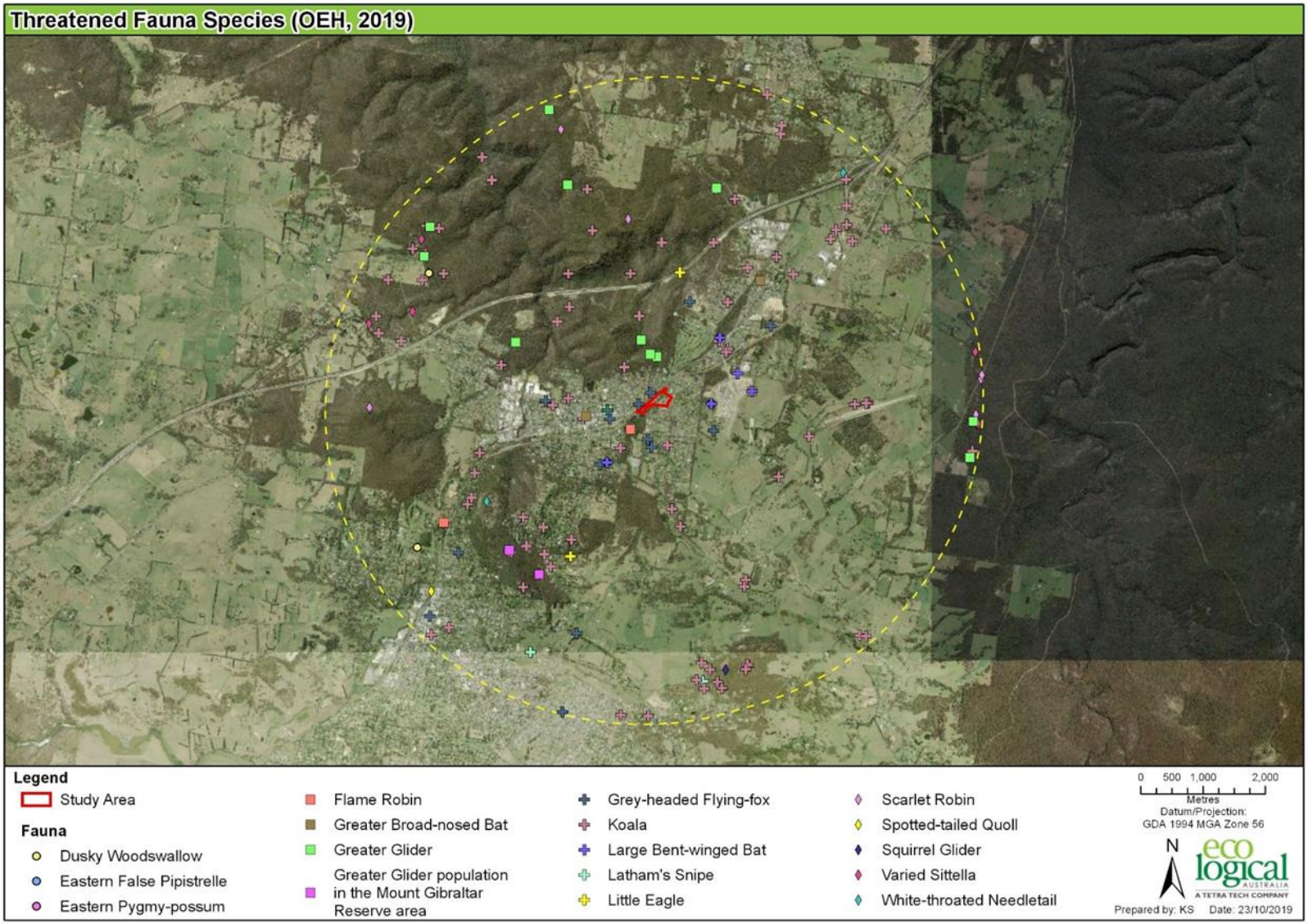

Figure 6: Threatened fauna species within 5 km of the study area

4.2 Field Survey

4.2.1 Vegetation validation

A map of validated vegetation within both the development area and study area is shown in Figure 7.

A description of the validated vegetation communities is described below, and a summary shown in Table 3 including Plant Community Types (PCTs) in accordance with the BioNet Vegetation Classification. Weeds and Exotics are not considered part of a PCT; however, a description of weeds has been provided below.

Table 3: Vegetation communities within the development area

Vegetation community	PCT ID	PCT Name	BC Act Status	EPBC Act Status
Southern Highlands Shale Woodland	944	*Mountain Grey Gum – Narrow-leaved Peppermint grassy woodland on shales of the Southern Highlands, southern Sydney Basin Bioregion*	EEC[1]	CEEC[2]
Exotic	N/A	N/A	N/A	N/A
Exotic Pines	N/A	N/A	N/A	N/A
Exotic with scattered Acacias	N/A	N/A	N/A	N/A

4.2.1.1 Southern Highlands Shale Woodlands

Southern Highlands Shale Woodlands in the Sydney Basin Bioregion is listed as an endangered ecological community under the BC Act. This community is also listed as a critically endangered ecological community under the EPBC Act.

Southern Highlands Shale Woodlands community occurred in the southern part of the study area in low poor condition. The best fit Plant Community Type (PCT) is PCT 944 *Mountain Grey Gum – Narrow-leaved Peppermint grassy woodland on shales of the Southern Highlands, southern Sydney Basin Bioregion*. The vegetation community meets the size criteria to be considered as part of the EPBC listed community. Table 4 provides the condition classes for this community under the EPBC Act.

The Southern highlands Shale Woodlands identified within the study area contained a canopy dominated by *Eucalyptus quadrangulata* (White-topped Box) and *Eucalyptus piperita* (Sydney Peppermint), with *Eucalyptus radiata* (Narrow-leaved Peppermint) and *Eucalyptus cypellocarpa* also present. The midstorey was sparse, dominated by *Acacia mearnsii*. The groundcover was degraded and contained a mixture of native and exotic grasses and forbs.

[1] EEC= Endangered Ecological Community

[2] CEEC= Critically Endangered Ecological Community

4.2.1.2 Exotic vegetation

A large portion to the east of the derelict buildings was comprised of exotic grasses and opportunistic weeds. Large exotic Willows (*Salix* sp.) also occur along the banks of the Nattai River (Figure 7).

4.2.1.3 Exotic Pines

Planted exotic *Pinus* sp. (Pine) and *Cupressus* sp. (Cypress pine) were mapped within the north-east of the study area as were two large pine trees in the south of the study area.

4.2.1.4 Exotic with scattered Acacias

Other planted exotic trees were prevalent across the site with a mix of scattered Acacias. The scattered, planted Acacias do not form part of any PCT.

4.2.2 Threatened Ecological Communities

One threatened ecological community was identified within the study area; Southern Highlands Shale Woodlands (PCT944) was present within the development area. Southern Highlands Shale Woodlands is listed as is listed as an endangered ecological community under the BC Act. This community is also listed as a critically endangered ecological community under the EPBC Act. The Southern Highlands Shale Woodlands meets B2. Moderate condition class under the following threshold criteria (Table 4).

- The patch size is > 0.5 ha and
- >30% of the perennial understory vegetation cover is made up of native species and
- The patch contains at least one tree hollow.

Table 4: Condition categories, classes and thresholds for the Southern Highlands Shale Forest and Woodland[3]

Category and Rationale	Thresholds		
A1. High condition class A larger patch with good quality native understorey	Patch size > 2 ha **And** > 50% of the perennial understorey vegetation cover* is made up of native species **Or** > 30 native understorey species per ha		
A2. High condition class A patch with very good quality native understorey	Patch size > 0.5 ha **And** > 70% of the perennial understorey vegetation cover is made up of native species		
B1. Moderate condition class A patch with good quality native understorey	Patch size > 0.5 ha **And** > 50% of the perennial understorey vegetation cover is made up of native species **Or** > 15 native understorey species per 0.5 ha		
B2. Moderate condition class A moderate sized patch with connectivity to a native vegetation area; or a mature tree; or a tree with hollows	Patch size > 0.5ha **And** > 30% of the perennial understorey vegetation cover is made up of native species **And**		
	The patch is contiguous** with another type of native vegetation remnant (i.e. any native vegetation where cover in each layer present is dominated by native species) >1 ha in area	**Or**	The patch has at least one tree with hollows per 0.5 ha or at least one large locally indigenous tree (>60cm dbh) per 0.5 ha
dbh is diameter at breast height. **Perennial understorey vegetation cover* includes vascular plant species of the ground and shrub layers (where present) with a lifecycle of more than two growing seasons. The ground layer includes herbs (i.e. graminoids, forbs, and low shrubs [woody plants <0.5m high]). Measurements of perennial understorey vegetation cover exclude annuals, cryptogams, leaf litter or exposed soil. ***Contiguous* means the patch of the ecological community is continuous with, or in close proximity (within 100 m) to, another area of vegetation that is dominated by native species in each vegetation layer present.			

[3] Adapted from *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (s266B) Approved Conservation Advice (including listing advice) for Southern Highlands Shale Forest and Woodland of the Sydney Basin Bioregion (EC62).

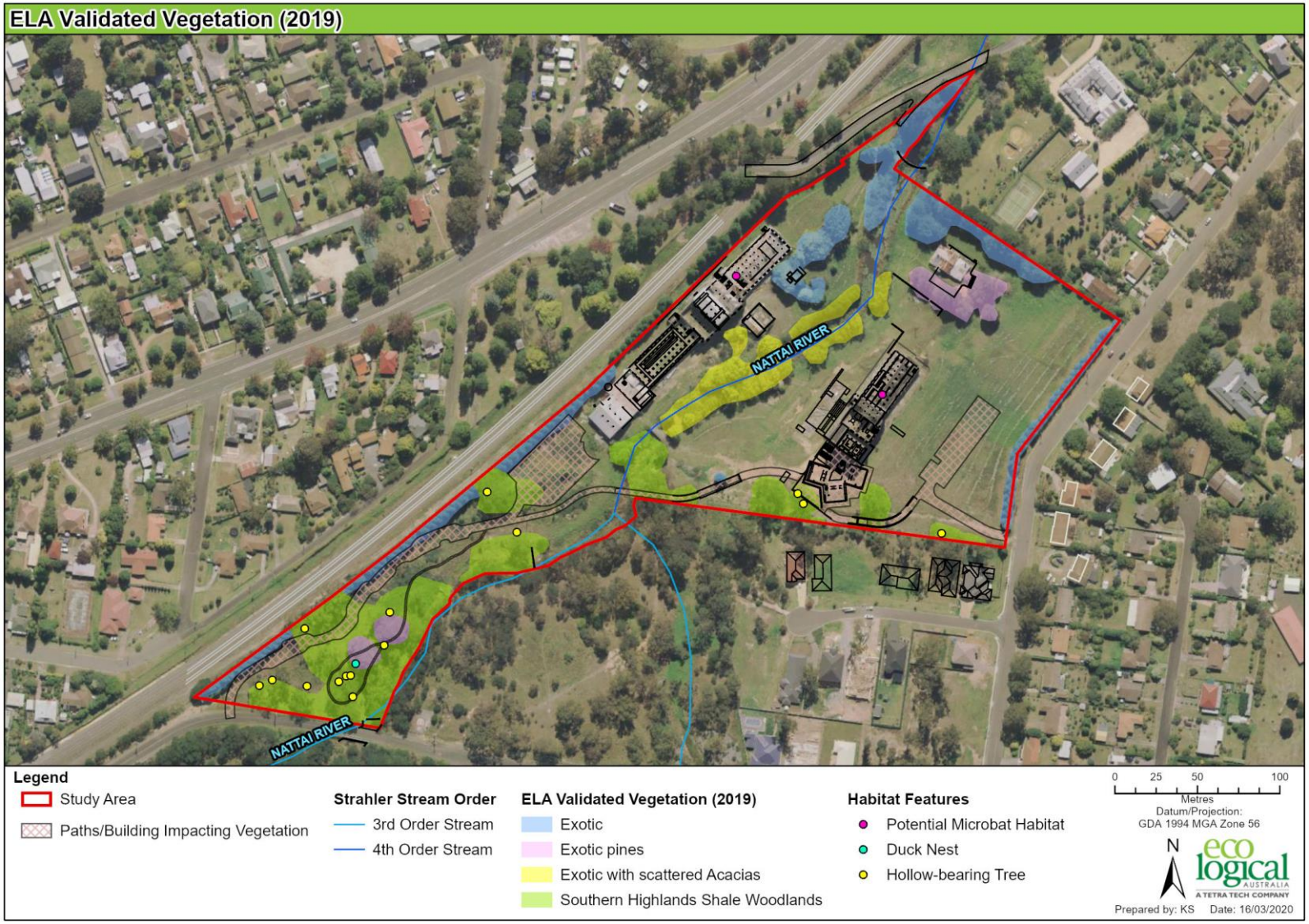

Figure 7: ELA validated vegetation communities, biodiversity values and the proposed impact areas

Figure 8: *Salix* sp. (Willows) along the riparian corridor of Nattai River.

Figure 9: BAM plot within the Southern Highlands Shale Woodlands

Figure 10: Derelict building on site (Potential microbat roosting habitat)

Figure 11: Scattered, panted *Acacia* spp. Within the study area

4.2.3 Flora species

The field survey identified 52 flora species, comprising 29 native and 23 exotic species. A full list of flora species recorded within the study area is available in Appendix A.

4.2.4 Threatened Flora Species

No threatened flora species were identified within the study area. Additionally, no habitat was identified for threatened flora species within the development area.

4.2.5 Priority Weeds

Three Priority Weeds listed under the NSW *Biosecurity Act 2015* were identified in the study area. All three weeds are also listed as Weeds of National Significance (WoNS) and as species subject to local management programs under the South East Regional Strategic Weed Management Plan (SERSWMP) 2017-2022 (LLS 2017). The Priority Weeds present, their management class and their status as a WoNS is presented in Table 5.

Table 5: Priority weeds and WoNS present in the study area

Scientific Name	Common Name	Priority Weed Objective	WoNS	SERSWMP requirement
Asparagus aethiopicus	Ground Asparagus	State – Asset Protection	Yes	Mandatory measure[4]
Rubus fruticosus aggregate	Blackberry	State – Asset Protection	Yes	Mandatory measure
Salix sp.	Willow	State – Asset Protection	Yes	Mandatory measure

4.2.6 Fauna species and habitat

An assessment of habitat features was used to determine the suitability of the study area to support fauna species, including threatened species. The remnant vegetation within the study area is likely to provide suitable foraging, sheltering and roosting habitat for a range of native fauna species.

15 Hollow-bearing trees and stags were observed within the study area and have the potential to provide roosting and/or breeding habitat for hollow-dependant fauna.

Table 6 summarises the typical habitat features required for fauna species with particular emphasis on threatened species.

Table 6: Assessment of habitat features for fauna species within the study area and the study area

Feature(s)	Habitat type(s)	Guilds	Study area
Woodland and forest vegetation	Foraging habitat	Birds, microchiropteran bats (microbats), megachiropteran bats (fruit bats), arboreal mammals, reptiles	Present
Winter flowering species	Foraging habitat	Winter migratory birds, arboreal mammals and megachiropteran bats (fruit bats)	Present
Hollow-bearing trees	Roosting habitat	Microbats, birds, mammals	Present

[4] *Mandatory measure* (Part 2 Division 8, Clause 29, draft Biosecurity Regulation 2016): A person must not move, import into the State or sell any plant.

Feature(s)	Habitat type(s)	Guilds	Study area
Derelict buildings / structures	Winter roosting habitat	Microbats	Present
Stags	Roosting habitat	Birds, particularly birds of prey, reptiles, amphibians, bats	Present
Coarse woody debris	Foraging/sheltering habitat	Terrestrial mammals, reptiles, invertebrates	Present
Creek and drainage lines	Foraging habitat	Amphibians, reptiles, mammals and microbats	Present

4.2.6.1 Birds

A number of large hollow-bearing trees and stags were noted within the study area which are suitable roosting habitat for large forest owls including threatened species such as *Ninox connivens* (Barking Owl), *Ninox strenua* (Powerful Owl) and *Tyto novaehollandiae* (Masked Owl). A large portion of the study area is cleared with scattered trees and open exotic grassland. Of the forest owls, the Masked Owl has the potential to forage within the open areas of the study area.

Additionally, native vegetation within the study area which may attract some bird species such as *Petroica phoenicea* (Flame Robin) and *Daphoenositta chrysoptera* (Varied Sittella) to traverse the study area intermittently.

4.2.6.2 Bats

The derelict buildings on site may provide winter roosting habitat for threatened microchiropteran bat species (microbats). No targeted surveys have been conducted to confirm the presence of microbats within the buildings due to access restrictions. However, taking a precautionary approach for the purpose of this assessment it is assumed that the derelict buildings provide potential winter roosting threatened microbat species such as *Miniopterus orianae oceanensis* (Large Bent-winged Bat) which is listed as a vulnerable species under the BC Act. The Greater Broad-nosed Bat (*Scoteanax rueppellii*) is a tree-roosting microbat, however this species has also been known to roost in buildings if no suitable roosts are available. This species is listed as vulnerable under the BC Act.

15 Hollow bearing trees were identified in the study area which have the potential to provide suitable roosting habitat for microbats. These species include the Greater Broad-nosed Bat and *Falsistrellus tasmaniensis* (Eastern False Pipistrelle), and. Eastern False Pipistrelle is listed as vulnerable species under the BC Act.

Native and exotic trees located within the study area may also attract megachiropteran (fruit bats) such as the *Pteropus poliocephalus* (Grey-headed Flying-fox). Multiple records of Grey-Headed Flying-fox (GHFF) are known within a 5 km radius of the study area.

2024 UPDATE

An inspection of the study area was undertaken by senior ELA ecologist Stacey Wilson on 16 January 2024. During the inspection, an estimated 50 to 75 individual Grey-headed Flying-foxes were observed roosting in a camp within the centre portion of the study area. The Grey-headed Flying-foxes were observed roosting amongst exotic *Salix* sp. (Willow) which took up an area of approx. 20 m x 20 m along the riparian corridor (See Photo 1 and Photo 2). The trees are located about 20 – 25 m to the nearest building (M1) See Photo 3. The individuals appear to be contained to four trees. No individuals were

observed roosting in other trees within the study area. The location of the camp is provided in Figure 12.

Photo 1: Grey-headed Flying-foxes roosting amongst exotic *Salix sp.* Within the central portion of the study area along the riparian corridor.

Photo 2: Grey-headed Flying-fox – view from eastern side of the riparian corridor looking west with M1 building in background

Photo 3: Grey-headed Flying-fox – view on western side of the riparian corridor looking south with M1 building to the right.

Figure 12: location of Grey-headed Flying-fox occupied trees observed during site inspection 2024.

4.2.7 Threatened fauna species

As stated in Section 4.2.6 above, during the 2024 inspection a camp of 50-75 individuals of GHFF were observed occupying the site. GHFF is listed as a vulnerable species under both the BC Act and EPBC Act.

Derelict buildings on site may provide roosting habitat for threatened microbat species. No targeted surveys have been conducted to confirm the presence of microbats within the buildings. However, taking a precautionary approach for the purpose of this assessment it is assumed that the derelict buildings provide potential roosting habitat for threatened microbat species listed as vulnerable under the BC Act.

Threatened species considered known, likely or with the potential to occur in the study area intermittently include:

- *Falsistrellus tasmaniensis* (Eastern False Pipistrelle)
- *Miniopterus orianae oceanensis* (Large Bent-winged Bat)
- *Scoteanax rueppellii* (Greater Broad-nosed Bat)
- *Pteropus poliocephalus* (Grey-headed Flying-fox)
- *Petroica phoenicea* (Flame Robin)
- *Cercartetus nanus* (Eastern Pygmy-possum)
- *Petauroides volans* (Greater Glider).

4.2.8 Site Connectivity

Local corridors provide connections between remnant patches of habitat and landscape features. Due to their relatively small area and width (they may be <50 m), these corridors are subject to edge effects (Scotts 2002, Lindenmayer and Fisher 2006). Habitat links are evaluated in this report as links from habitat on-site directly to similar habitat on adjacent land. These would be used by fauna, which depend solely or at least partially on the site for all of their lifecycle requirements, and/or dispersal (Lindenmayer and Fisher 2006).

The Southern Highlands Shale Woodland along the southern portion of the study area forms part of a patch with native vegetation adjacent to the study area. These vegetated areas are well connected and are likely to be the most likely route used by migrating fauna.

A large proportion of the study area is made up of open, exotic grassland and existing buildings and structures. Therefore, it is unlikely that most fauna would traverse open areas, given the presence of native, vegetative corridors located outside of the study area. There are some fauna species which may opt to forage in open areas as discussed in the sections above.

4.3 Watercourses and riparian habitat / mapped coastal wetlands

4.3.1 Strahler stream order for mapped watercourses

The northern part of the study area is dissected by Nattai River which is mapped as a fourth order stream under the Strahler stream order classification system. The south eastern boundary is formed by the bank of Nattai River which is mapped as a third order watercourse. The proposed development includes remediation works within the riparian zone.

An unnamed tributary of Nattai River runs outside of the study area, south of the eastern boundary. The unnamed tributary is mapped as a third order stream under the Strahler stream order classification system (Figure 13). All watercourses met the definition of a river having a defined bed, bank and channel. Watercourses contained either flowing or pools of water at the time of survey.

4.3.2 Riparian Condition

The riparian zone is in a generally degraded condition with exotic and remnant native vegetation and both man-made and natural landform within the riparian zones. The creek exhibits a range of conditions including weirs, shaped banks and filled land within the riparian zone, a rocky section below one of the weirs, pools and shallows.

The creek bank and adjacent vegetation in the northern half of the site was dominated by exotic canopy trees *Salix* sp., however several *Acacia mearnsii* (Black Wattle) occurred and native ground cover of *Lomandra longifolia* were also present along the creek. The creek contained small patches of *Typha orientalis* (Broadleaf Cumbungi) and occasional *Carex appressa.*

The presence of weirs would hinder fish passage. Local records indicate that there have been sightings of platypus upstream of the Maltings at Frensham School in creek pools above a weir, of which there is similar potential habitat at the Maltings.

Most platypuses are found in bodies of water that have earth banks with roots, overhanging vegetation, reeds, and logs to be more suitable for constructing their burrows. Platypuses occur in freshwater systems from tropical rainforest lowlands and plateaus of far northern Queensland to cold, high altitudes of Tasmania and the Australian Alps. They feed in both slow-moving and rapid (riffle) parts of streams, but show preference to coarser bottom substrates, particularly cobbles and gravel. When not foraging, the Platypus spends most of the time in its burrow in the bank of the river, creek or a pond. At times, the individuals use rocky crevices and stream debris as shelters, or they burrow under the roots of vegetation near the stream. Hence, the ideal habitat for the species includes a river or a stream with earth banks and native vegetation that provides shading of the stream and cover near the bank. The presence of logs, twigs, and roots, as well as cobbled or gravel water substrate result in increased microinvertebrate fauna (a main food source), and the Platypus also tends to be more abundant in areas with pool-riffle sequences. Riparian restoration needs to include habitat features suitable for platypus.

4.3.3 Waterfront land

Waterfront land is defined as the bed and bank of any river, lake or estuary and all land within 40 m of the highest bank of the river, lake or estuary. Any impacts on land mapped as waterfront land requires a controlled activity approval. The proposed development footprint (being mainly redevelopment of existing buildings within the existing footprint and new shed at the northern end of M2 as well as

landscaping) encroaches into waterfront land for both Nattai River and the unnamed tributary (Figure 13). The mapping of waterfront land is based on the existing hydroline data and highest bank validated by site survey.

4.3.4 Key Fish Habitat

A permit is required under the *Fisheries Management (FM) Act 1994* in relation to dredging, reclamation or obstruction of fish passage on or adjacent to Key Fish Habitat (KFH). This includes direct and indirect impacts, whether temporary or permanent. KFH has been mapped along the Nattai River within the Wingecarribee Shire.

No obstruction of fish passage or dredging or reclamation occurs is expected as part of the proposed works. Therefore, a permit is not considered necessary.

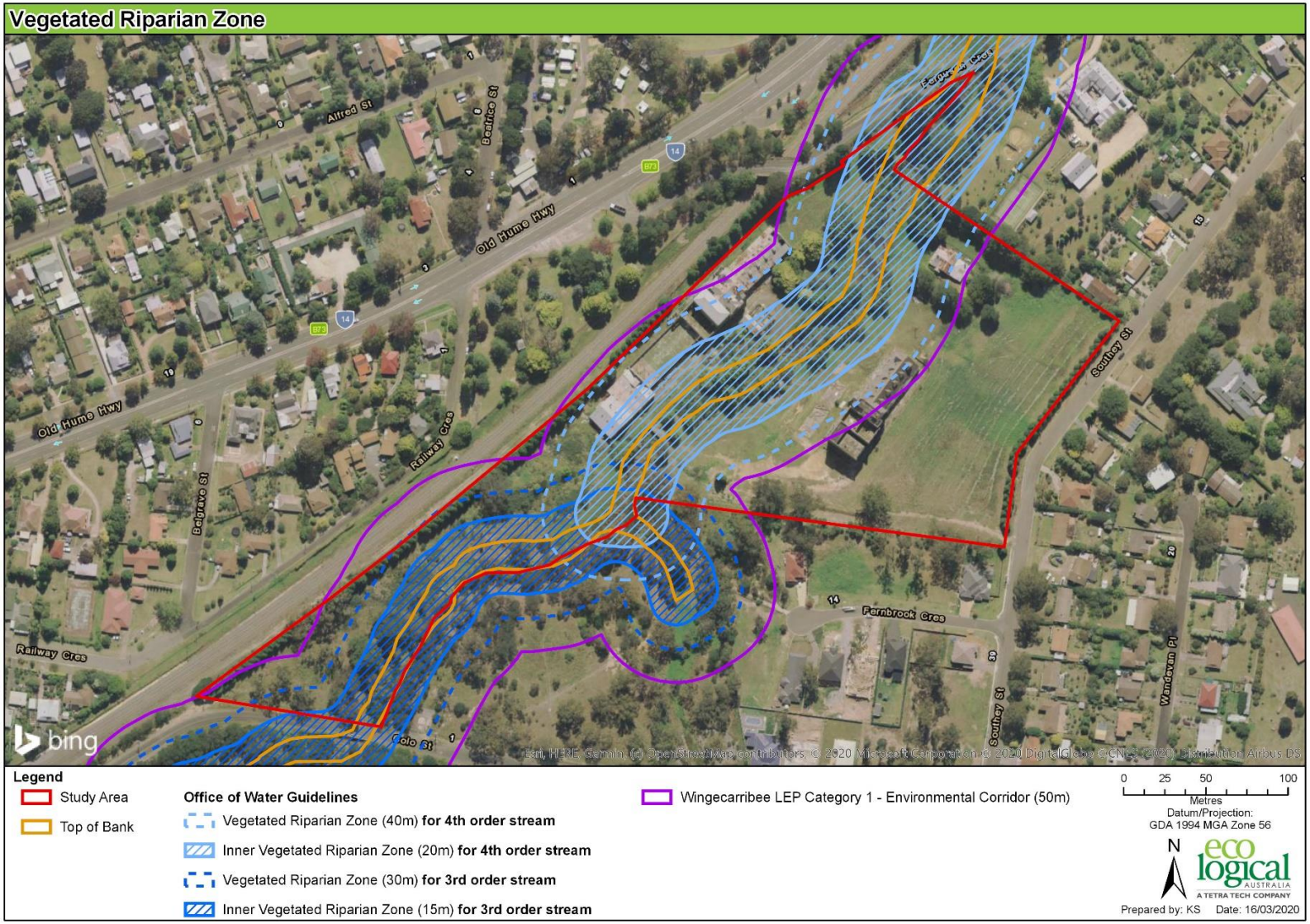

Figure 13: Riparian land in the study area

5. Impact Assessment Summary of Impacts

The potential impacts of the proposal to threatened species and communities listed under the BC Act and EPBC Act was assessed by undertaking an assessment of likelihood of occurrence for threatened and migratory species identified from the database search (Appendix B).

Assessments were conducted for those species listed under the BC Act and / or EPBC Act considered likely or known to use habitat within the study area, after considering both the desktop review and results from the field survey. Some threatened species which are wide-ranging, mobile and breed in habitat not present within the study area, may still utilise the study area on occasion, e.g. some highly mobile birds or bats. The proposal has the potential to indirectly impact threatened species. Therefore, application of assessments under the BC Act and EPBC Act were applied.

An assessment of impacts was undertaken under the Water Management Act.

5.1 Direct Impacts

Direct impacts are those impacts that directly affect habitat and individuals. Direct impacts considered for this assessment include the removal of 0.1 ha of SHSW in moderate to good condition, <0.01 ha of exotic vegetation and approximately 0.02 ha of exotic pines. The removal of both native and exotic vegetation may represent suitable foraging habitat for some threatened microbat and bird species.

Additionally, the refurbishment of the buildings which may potentially impact upon provide winter roosting habitat for some threatened microbat species.

The proposed redevelopment is likely to result in the following direct impacts:

- Direct – Removal of native and exotic vegetation
- Potential – loss or modification of foraging habitat (maintenance of vegetation for the APZ)
- Potential – loss of winter roosting habitat for threatened microbats (redevelopment of buildings)
- Potential – loss of foraging habitat for threatened fauna

5.1.1 Removal of Native Vegetation

The proposed works will result in the clearing of approximately 0.1 ha of SHSW understorey vegetation and up to 0.02 ha of exotic vegetation. The impact areas have also included the mowing of the understorey for informal pathways as part of the direct impacts to vegetation. (Table 7).

Table 7: Vegetation directly impacted

Vegetation Community	Direct Impacts (ha)
Southern Highlands Shale Woodland (low condition)	0.1
Exotic	<0.01
Exotic Pines	0.02
Total	**0.13**

UPDATE 2024

The vegetation immediately to the south of Maltsters House may potentially be affected by proposed works for that building. The majority of this vegetation is exotic, as detailed in the Arboricultural Impact Assessment (ELA, 2020) and addendum letter (ELA, 2024). There are two native trees, *Acacia decurrens*, near Maltsters House. If impacts to native vegetation are proposed, further impact assessment may be required. Impacts to exotic vegetation do not require assessment under the BC Act unless the vegetation provides habitat for threatened fauna. However, no potential fauna habitat was identified in any of the exotic vegetation at that location.

5.1.2 Threatened Flora

No threatened flora or habitat for threatened flora species will be impacted by the proposed works.

5.1.3 Removal of Potential Habitat for Threatened Species

Habitat features were observed within the site, such as hollow-bearing trees, derelict buildings etc. Therefore, potential foraging, roosting and nesting habitat are likely to exist within the study area for a range of threatened fauna species. However, due to the partially disturbed nature of the site (areas of open exotic grasslands and under-scrubbed native vegetation) and the mitigations measures to be implemented as part of the works outlined in Section 6, impacts to potential threatened fauna and their habitat would be largely ameliorated.

5.1.3.1 Microchiropteran Bats and other Mammals

Microchiropteran bats such as Large Bent-winged Bat, Little Bent-winged Bat, Eastern False Pipistrelle and Greater Broad-nosed Bat have been considered as having foraging and roosting habitat within the study area. A number of hollow-bearing trees within the site may provide roosting and breeding habitat for a number of these species. The proposed redevelopment will not result in the loss of any hollow-bearing trees and therefore no roosting or breeding habitat for Little Bent-winged Bat will be impacted by the proposed redevelopment.

The proposed refurbishment of the buildings may result in the loss of winter roosting habitat for Greater Broad-nosed Bat and Large Bent-winged Bat which are known to roost in buildings when no suitable tree roosting habitat is available. Prior to refurbishment of the buildings, inspections will be undertaken to determine whether micro-bats are inhabiting the buildings. If micro-bats are using the buildings, a protocol will be developed for their relocation.

It is noted that a number of highly mobile threatened species may traverse the study area intermittently, and direct impacts to their habitat is considered minimal. As such impact's assessments were not conducted for these species.

UPDATE 2024

The non-native vegetation may provide an occasional foraging resource for the GHFF. The proposal does not include the removal of the *Salix.* Sp. As part of the development footprint. However the removal of exotic vegetation which may be considered as part of a Vegetation Management Plan (VMP) associated with the DA may have an impact on this species.

The exotic plants would be used occasionally and form part a foraging network throughout the locality. The consequence would be a minor reduction in marginal foraging habit.

5.2 Indirect Impacts

Indirect impacts are those impacts that do not directly affect habitat and individuals but that have the potential to interfere through indirect action. Indirect impacts considered for this assessment are site impacts (noise, light and weed invasion) and downstream or downwind impacts (sedimentation, dust, accidental spills and leaks.

An assessment of indirect impacts has been included as part the impact assessment. Potential indirect impacts may include:

- increase in surface water runoff, sedimentation and nutrients during and following construction
- possible increase in weeds following construction works
- increase in noise disturbance to local fauna.

There is a risk that sediment runoff may impact adjacent native vegetation and nearby drainage lines/creeks if appropriate sediment and erosion measures are not in place. This impact will be managed via an appropriate sediment and erosion control plan. The overall impact is likely to be minor.

During the construction noise, dust and to a small degree vibration will be emitted which could have an indirect impact on local fauna. These impacts result from the operation of heavy machinery to clear vegetation and construct the buildings and infrastructure.

It is noted that the existing environment is already affected by weed infestation. The proposed industrial redevelopment is unlikely to significantly exacerbate impacts associated with weeds. Priority and regional weeds listed in Section 4.2.5 should be managed in accordance with the South East Regional Strategic Weed Management Plan 2017 – 2022 (LLS 2017).

UPDATE 2024

A small camp of GHFF was identified in the study area and were using a patch of exotic vegetation approximately four *Salix* sp. The individuals present are likely to relying on other native and exotic canopy species for roosting including *Eucalyptus* spp., and *Ligustrum* spp.

The GHFF mate in early Autumn and give birth around October. After mating, larger camps tend to break up to accommodate for sparser food resources. This smaller camp may be a breakaway camp from a larger camp and is utilised once breeding is complete.

No targeted fly in or fly out surveys have been conducted for this species, however based on aerial imagery, there are large tracks of vegetation which follow along the Nattai river and extent to the north within Nattai Gorge. It is probable that that the large expanses of native vegetation through Nattai Gorge are providing a substantial foraging resource for this species.

The modification to the FFA does not propose to remove any additional native or exotic vegetation. However indirect impacts associated with the approved works may have an adverse effect on the camp, such as noise, vibration and light pollution associated with construction works.

Mitigation measures should be adopted to reduce any adverse indirect impacts to this species. This is addressed in Section 6.

5.3 Biodiversity Conservation Act 2016

The BC Act came into effect in August 2017 replacing the *Threatened Species Conservation Act 1995.* Impacts to threatened species and threatened ecological communities listed under the BC Act are required to be assessed in accordance with Section 7.3 of the BC Act, known as 'assessment(s) of significance'.

For a local development under Part 4 of the EPA & Act, the Biodiversity Offsets Scheme (BOS) and Biodiversity Assessment Method (BAM) may be triggered by the following means:

- Area clearing threshold- exceeding the area clearing threshold associated with the minimum lot size for the property will trigger entry into the BOS (Table 8)
- whether the impacts occur on an area mapped on the Biodiversity Value Map

At the DA stage, the proponent is also required to undertake 'tests of significance' for the threatened species for development that does not exceed the two thresholds listed above. If a 'test of significance' determines a significant impact on threatened species, the BOS will be triggered, and a BAM assessment must be undertaken.

5.3.1 Biodiversity Offsets Scheme – Area Clearing Threshold

The area clearing threshold is triggered when an area of native vegetation[5] to be cleared reaches the thresholds for the relevant lot size. The minimum lot size is 700 m^2. Therefore, the minimum lot size associated with the property is less than 1 ha (Table 8). Approximately 0.01 ha of native vegetation will be removed as part of the proposal.

Therefore, the BOS would not be triggered and a Biodiversity Development Assessment Report (BDAR) would not need to be prepared.

Table 8: Area clearing threshold

Minimum lot size associated with the property	Threshold for clearing native vegetation, above which the BAM and offsets scheme apply
Less than 1 ha	**0.25 ha or more**
1 ha to less than 40 ha	0.5 ha or more
40 ha to less than 1000 ha	1 ha or more
1000 ha or more	2 ha or more

5.3.2 Offset Scheme Thresholds – Biodiversity Values Land Map

The BV Map identifies land considered to have high biodiversity value as defined by the *Biodiversity Conservation Regulation 2017.* The study area is not currently mapped on the Biodiversity Values Map (BVM) accessed 3 March 2020.

[5] *Native vegetation* is defined in Section 1.6 of the BC Act (and has the same meaning as in Part 5A of the *Local Land Services Act 2013*); essentially encompasses any species native to NSW and does not necessarily conform to a Plant Community Type.

UPDATE 2024

The proposal involves impacts to areas that occur on the BV Map (Figure 3); however, these areas were added to the BV Map on 29 March 2023 after the development footprint had been approved under DA20/1400. As the application to modify the DA, and new DA, do not propose any additional impacts to land on the BV Map beyond the 2022 approval, this is not a trigger for the BOS.

5.3.3 Key Threatening Processes

A number of Key Threatening Processes (KTPs) listed under the BC Act and / or EPBC Act are likely to be relevant to the proposed works. These are:

- Clearing of native vegetation (BC Act)
- Invasion of native plant communities by exotic perennial grasses (BC Act)
- Loss and degradation of native plant and animal habitat by invasion of escaped garden plants (EPBC Act and BC Act).

5.3.4 Test of Significance (BC Act)

A 'test of significance' (otherwise known as a 5-part test) is required for Part 4 development that does not exceed the area clearing and BV Map thresholds to trigger the BOS.

The 5-part test is used to determine if the development is likely to have a significant impact on any threatened species, population or ecological community such that it could result in the extinction of the local population. If a significant impact in indicated by the 5-part test, then the proposal would trigger the BOS and BAM assessment required.

A 5-part test was applied to the following threatened ecological communities and species:

- *Miniopterus orianae oceanensis* (Large Bent-winged Bat)
- *Scoteanax rueppellii* (Greater Broad-nosed Bat) and
- *Pteropus poliocephalus* (Grey-headed Flying Fox).

These assessments concluded that it is unlikely that the proposal would significantly impact threatened species for the following reasons:

- the area to be impacted is small
- no critical habitat will be impacted for these species
- the proposal will not fragment or isolate any fauna habitat
- large amounts of similar habitat are available within the survey area and adjacent to the study area
- the habitat is likely to be used in a transitory nature as no key breeding habitat is likely to be present within the study area.

5.4 *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act)

The EPBC Act establishes a process for assessing the environmental impact of activities and developments where 'Matters of National Environmental Significance' (NES) may be affected. Under the Act any action which "has, will have, or is likely to have a significant impact on a Matter of National Environmental Significance" is defined as a "controlled action", and requires approval from the Commonwealth Department of the Environment and Energy (DotEE) which is responsible for administering the EPBC Act.

UPDATE 2024

One threatened species *Pteropus poliocephalus* (Grey-headed Flying-fox) is listed as vulnerable under the EPBC Act has been recorded within the study area. There were between 50 and 75 individuals recorded roosting within four exotic trees within the central portion of the study area. The occupied trees are not proposed to be removed under the proposal. However, Significant Impact Criteria was applied to GHFF to address indirect impacts associated with the works which may have an adverse impact on the species.

The Significant Impact Criteria was applied to Grey-headed Flying-fox which concluded that the proposed development may potentially have an adverse impact on the species though causing a possible decline in the resident population (Appendix D). Consequently, the preparation of a referral under the EPBC Act is recommended.

5.5 Water Management Act 2000

The *Guidelines for Riparian Corridors on Waterfront Land* (NRAR (2018) allow for a streamlined assessment process that recommend vegetated riparian zones which vary in width depending on the stream order. Vegetated riparian zones (VRZ) relate to the streams adjacent to, and partially within the study area consistent with Table 9 below.

Table 9 Recommended riparian corridor widths consistent with NRAR (2018)

Watercourse type	VRZ width (each side of watercourse)	Total riparian corridor width
third order	30 m	60 m + channel width
fourth order	40 m	80 m + channel width

The mapping of vegetated riparian zones are based on the hydroline data, GIS and survey data. Although the watercourses are not entirely in the study area, the VRZs occur within the study area. The proposed development footprint encroaches into the VRZ for both Nattai River and the unnamed tributary.

For a streamlined assessment the above Guidelines include a riparian corridor matrix which allow for certain works within the VRZ of 3rd and 4th order streams:

- Riparian Corridor (RC) offsetting for non-RC uses
- Cycleways and paths
- Detention basins within the outer 50% of the VRC
- Stormwater outlet structures and essential services
- Road crossings such as culverts and bridges

It is important to note that the proposed development at the Maltings is primarily the redevelopment of existing heritage buildings (within the existing footprint) that occurs within these areas. The new buildings M4-6 all occur outside of the riparian and waterfront zones, with only the new shed at the northern end of the M2 that extends into these zones, as well as some landscape elements that will be handled sensitively with minimal harm to waterfront land in accordance with the DPI Office of Water Guidelines for Vegetation Management Plans on Waterfront Land.

As this development will require the works within the waterfront land (i.e. land within 40 of the highest bank) additional to those in the riparian corridor matrix, it requires a merit-based assessment and controlled activity approval by the Natural Resource Access Regulator (NRAR), as opposed to a streamlined assessment.

5.6 Wingecarribee Local Environmental Plan (WLEP) 2010

The land is zoned R2 Low Density Residential. Under the LEP the site is a locally listed as the Maltings Heritage Conservation Area and is a heritage item that is being considered for State listing.

The study area has been mapped on the Wingecarribee LEP (WLEP) Natural Resources Sensitivity Map as Riparian Land Category 1 - Environmental Corridor being land within 50 metres from the top of stream bank on each side. The proposed development must take these matters into consideration.

The objectives of WLEP Clause 7.5 Natural resources sensitivity – water that apply to the subject land include:

- *protecting water quality, and*
- *protecting natural water flows, and*
- *protecting stability of the bed and banks of waterways, and*
- *protecting groundwater system*

The consent authority must consider the impacts of the development on:

- *the natural flow regime,*
- *the water quality of receiving waters,*
- *the waterway's natural flow paths,*
- *the stability of the waterway's bed, shore and banks,*
- *the flow, capacity and quality of groundwater systems.*

Development consent must not be granted to development on land to which the clause applies unless the consent authority is satisfied that:

- *the development is designed, sited and managed to avoid any potential adverse environmental impact, or*
- *if that impact cannot be avoided—the development is designed, sited and will be managed to minimise that impact, or*
- *if that impact cannot be minimised—the development will be managed to mitigate that impact.*

A large part of the study area and the existing buildings encroaches into the Natural Resources Sensitivity Layer - Riparian Land Category 1 Environmental Corridor. The proposed works within this land are to upgrade the buildings for community and hotel purpose and to rehabilitate the riparian zone. All of the

proposed works would take place on land that has already been disturbed. The restoration of the riparian zone is consistent with the LEP objectives.

5.7 Mittagong Township Development Control Plan 2019

The Mittagong Township DCP requires Ecologically Sustainable Development under Section A2.2.8 to achieve the following matters related to ecology of the study area:

- *protect vegetation, threatened species, ecological communities, hydrological aspects, watercourses, significant natural features, and any other aspect of environmental quality.*
- *no net loss of riparian condition, remnant vegetation, biodiversity values, wetland values, wildlife habitat or water quality.*
- *encourage on-site tree plantings which enhance the urban environment and provide additional wildlife habitat and connectivity of habitat*

It requires specific to the study area that *'Any development within the Maltings neighbourhood shall incorporate improvements to the ecological value of the foreshores and adjoining riparian zones of Nattai River and the quality of water flowing from land within the Maltings precinct, into the Creek.'*

The proposed rehabilitation of the riparian corridor is consistent with the objectives under the Mittagong Township DCP. The rehabilitation of the RC will seek to remove priority weeds under the Biosecurity Act, remove WoNS and revegetate with native species indigenous to the Southern Highlands Shale Woodland ecological community. The rehabilitation of the RC is expected to improve the water quality by planting native aquatic and semi- aquatic species which will stabilise the bank edges and reduce sedimentation into the Nattai River. Revegetation works across the study area will also improve connectivity of wildlife corridors between the study area vegetation within the locality.

5.8 Koala Habitat Protection SEPP 2019

The Koala Habitat Protection SEPP aims to encourage the conservation and management of areas of natural vegetation that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline.

The proposed development is located within an LGA to which the Koala Habitat Protection SEPP applies, and the development site is mapped on the Koala Development Application Map (accessed 4 March 2020) (Figure 14). The development site also contained feed tree species such as *Eucalyptus cypellocarpa* (Monkey Gum), *Eucalyptus piperita* (Sydney Peppermint), *Eucalyptus quadrangulata* (White-topped Box) and *Eucalyptus radiata* (Narrow leaved Peppermint) and there have been 103 previous records of Koala within 5 km of the development site. The most recent record is located approximately 626m to the south east of the site in 2014.

Assessment under 'Tier 1' can be applied to developments which can be demonstrated to have low or no direct impact on koalas or koala habitat if all criteria listed in Table 10 are met. If the development cannot meet all criteria above, then it exceeds a low level of impact on koalas and/or koala habitat and the Tier 2 process is triggered.

SEPP (Biodiversity and Conservation) 2021 is also relevant for the new DA. Under Section 4.9 of the SEPP, the SEPP applies to the land, as the land is greater than 1 ha and does not have an approved Koala Plan of Management. A Koala Assessment Report has been prepared to satisfy the requirements of the

SEPP. ELA have responded to the criteria outlined in Section 4.9 of the SEPP in their Koala Assessment Report addendum dated 8 February 2024.

Table 10: Tier 1 – Low or no direct impact development criteria and response under the proposed works.

Tier 1 Criteria	Response to criteria
1. indirect impacts that will not result in clearing of native vegetation within koala habitat	Indirect impacts associated with the proposed works include trimming of native tree branches to comply with APZ specifications. The above indirect impacts will not result in the clearing of native vegetation, only minor trimming of branches will be required to comply with APZ standards. Therefore, the above indirect impacts will not affect koala habitat.
2. the development is below the Biodiversity Offsets Scheme threshold under the BC Act	Approximately 0.1ha of native vegetation will be removed as part of the proposed works. However, the thresholds under the BOS will not be triggered under the BC Act.
3. there is no native vegetation removal	Approximately 0.1 ha of native vegetation will be removed as part of the proposed works.
4. the development footprint will not impede movement between koala habitat	The proposed redevelopment will utilise the existing building pads and open exotic areas and will not impede koala movement.
5. adequate mitigation measures such as those listed in Table 11 *are implemented as necessary.*	Mitigation measures are outlined in Table 11 and should form part of the consent conditions for the site.

Table 11: List of suggested management measures to address key indirect impacts[6]

Impact	Management measures
Dog attack	• Restrictions on the movement of dogs, including use of dog and koala proof fencing that effectively contains dogs and excludes koalas, with the provision of koala furniture that allows koalas to escape yards should they gain entry. • Signage and education. • Dogs excluded from koala habitat areas and only allowed off leash in areas • Established as not being habitat.
Vehicle strike	• Traffic speed limited as far as possible. • Traffic calming measures and roadside lighting. • Use of koala proof exclusion fencing, with the provision of escape mechanisms should koalas gain access to the road. • Inclusion of koala land bridges and/or underpasses where appropriate and in combination with koala proof exclusion fencing.
Bushfire	• Development and implementation of a bushfire management plan with measures that specifically address risks to koala habitat. • Core koala habitat should not form part of the Asset Protection Zone (APZ). The APZ should occur beyond any koala habitat. • Develop an emergency response plan that identities key contacts in RFS, local wildlife carers and vets, and list of appropriate Government resources

[6] Taken from Draft Koala Habitat Protection Guideline Implementing State Environmental Planning Policy (Koala Habitat Protection) 2019

Impact	Management measures
Introduction or spread of disease	• *Use of biosecurity and hygiene procedures in instances where vegetation pathogens known to affect koala trees might be spread or introduced. For example, strict enforcement of vehicle wash-down points*
Disturbance	• *Establishment of tree protection zones around any retained koala trees within the site area and preclusion of any development activities within the tree protection zones.* • *Habitat restoration and strategic plantings to improve connectivity of retained habitat and trees.* • *Where there may be indirect impacts on koala habitat, use of a suitably qualified koala spotter to inspect habitat prior to any development taking place.* • *Where koalas are identified, temporary suspension of works that might disturb the koala and/or prevent it from moving to adjacent undisturbed habitat of its own volition.* • *Koalas should be protected from disturbance and indirect impacts via appropriate exclusion fencing from urban areas and roads.* • *Fencing of urban areas should still allow for koalas to disperse through the koala habitat in the landscape and to connect with other koalas and koala colonies.*
Impediments to movement	• *Retention of koala habitat corridors with the principle of minimising adverse impacts and retaining existing corridors.* • *Infrastructure or development to be designed in a way that is reliably known to not impede safe koala movement. For instance, overpasses or underpasses as part of road design.* • *Infrastructure or development to be designed in a way that facilitates koala movement by incorporating retention and planting of koala trees, where it is safe to do so. For example, retaining and planting paddock trees, trees along fencelines and remnant patches of bushland on properties.* • *In some instances, there may be a need to reduce koala movement into* • *development areas where they are more at risk (e.g. through the use of exclusion* • *fencing).*

The proposed development does not satisfy all the criteria in Table 10 above as native vegetation is expected to be removed. As such a Koala Assessment Report will be required under the Koala Habitat SEPP 2019.

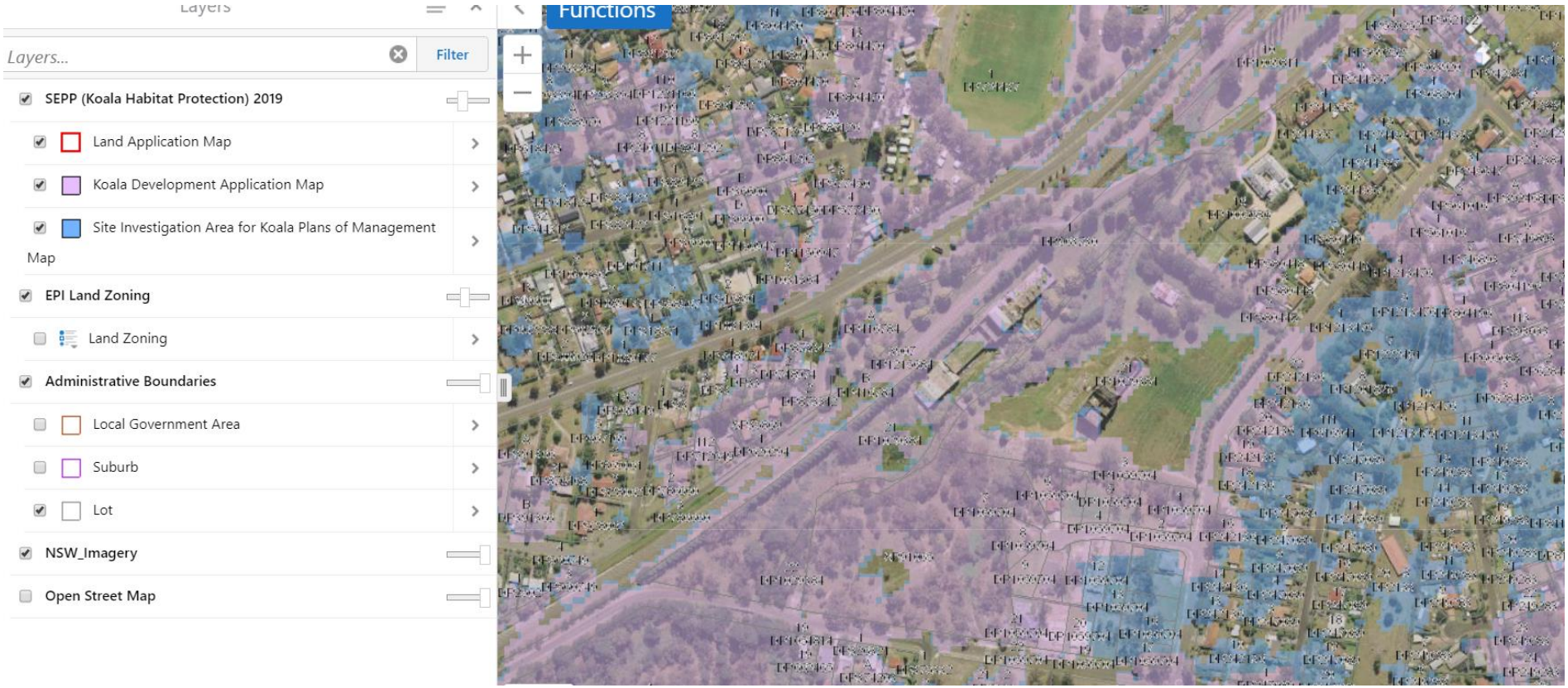

Figure 14: SEPP Koala Habitat Protection 2019 - Koala Development Application Map

6. Mitigation measures

To minimise the potential direct and indirect impacts on the development area, the following mitigation measures have been recommended below and should form part of the consent conditions:

- Maintenance activities in APZ areas are to follow rules under the *NSW Rural Fire Service – Standards for asset protection zones* apply:
  - *remove noxious and environmental weeds first. Your local council can provide you with a list of environmental weeds or 'undesirable species'. Alternatively, a list of noxious weeds can be obtained at www.agric.nsw.gov.au/noxweed/;*
  - *remove more flammable species such as those with rough, flaky or stringy bark; and*
  - *remove or thin understorey plants, trees and shrubs less than three metres in height*
- Establish a Tree Protection Zone (TPZ) intended to protect the trees identified for retention from development impacts and to maintain their health and vigour during and after development. The TPZ should not be accessed by heavy machinery and care is to be taken to not damage any trees. The calculation for the TPZ radius is as follows:
  - DBH x 12 where: DBH = Diameter at Breast height (in metres). It is recommended that TPZs are demarcated around trees that would be retained as part of the proposed works.
- Installation of appropriate measures (i.e. silt fences) around the impact area to limit the spread of sediment and weeds into adjacent vegetation.
- Develop a Construction Environmental Management Plan (CEMP) with relevant mitigation measures to ameliorate potential impacts to biodiversity values outside of the development area. The CEMP should include:
  - Sediment and Erosion Control Plan
  - Establishment of clearly defined areas, such as the works area and any 'no-go' areas within/adjacent to work site boundaries that are not to be in any way disturbed or damaged by the works
  - Construction fencing pre and during construction to ensure that construction related impacts are contained within the construction areas
- A pre-clearance survey is to occur prior to the commencement of any construction works within the buildings to relocate any bats that might be utilising the buildings as roosting habitat.
- Micro siting is to occur to avoid impacts to trees and sensitive vegetation where possible. It is recommended that a qualified ecologist provide advice during micro-siting on avoiding impacts to individual trees.

UPDATE 2024

- Prior to works commencing, a preclearance survey specifically targeting the GHFF must be completed. The survey will identify the extent of the camp, location, size and numbers.
- On the first day of clearing, a suitably qualified ecologist must be present to monitor any GHFF present. If bats in the camp become distressed and do not settle, works must cease until the bats settle. If the GHFF camp continues to become distressed, other mitigation measures such as noise attenuation may be required.

- If individual bats are seen flying consistently during the day, works must cease, and the ecologist will be called.
- Maps showing no go areas to be placed in site offices, all staff briefed during tool box talk or pre-work briefing on the location of the GHFF..

Install noise barriers or daily/seasonal timing of construction and operational activities to reduce impacts of noise if GHFF individuals are agitated and do not settle during construction.

7. Conclusions and Recommendations

Eco Logical Australia (ELA) was commissioned by Maltings Holdings Pty Ltd to prepare this FFA for the proposed redevelopment at 2 Colo Street, Mittagong (Lot 21 DP 1029384).

The proposed redevelopment will require a clearing of approximately 0.1 ha of SHSW in moderate to good condition and approximately 0.02 ha of exotic vegetation. These impacts were assessed against the triggers for the Biodiversity Offset Scheme (BOS), as part of the BC Act. The impacts were not considered to trigger the BOS, and therefore assessment using the Biodiversity Assessment Methodology (BAM) and a BDAR is not required. Subsequent to the development being approved in May 2022, areas of the site were added to the BV Map. However, the proposed DA modification and new DA do not propose any new clearing beyond what was previously approved. Hence, the BV Map is not a trigger for the BOS.

No threatened flora was recorded during the field survey or considered likely to occur within the study area. As such, a significant impact under Section 7.3 of the BC Act for threatened flora was considered unnecessary and an Assessment of Significance was not undertaken.

The removal of up to 0.1 ha of SHSW understorey vegetation for the proposed redevelopment will not result in a long-term decline in the population of threatened fauna species as approximately 0.9 ha of SHSW will be retained on site and likely to persist in the locality, and approximately 1.2 ha of native and exotic vegetation will be retained within the site.

The study area contains habitat for threatened species that have the potential to use the site for foraging and roosting resources. Tests of Significance were undertaken for threatened species likely to utilise this habitat. The Tests of Significance concluded that the proposal is unlikely to cause the extinction of a local population of a species and therefore a Biodiversity Development Assessment Report is not required.

Matters of National Environmental Significance (MNES) under the Commonwealth EPBC Act have been identified within the study area. Assessment of Significance criteria were applied to those MNES which may be adversely affected by the proposed works.

Following consideration of the administrative guidelines for determining significance under the EPBC Act, it was concluded that the proposal may result in the decline in the local population of GHFF. As such, referral to the Commonwealth is recommended.

Specific mitigation measures listed within this FFA should be adopted to reduce any adverse impact to the Grey-headed Flying Fox camp. A Management Plan for GHFF should be prepared which outlines how to manage the camp through construction and post-construction.

The proposed development involves remediation works on ‘waterfront land’ of Nattai River. Waterfront land is defined as 40 m from the highest bank of any creek line. The works are located on ‘waterfront land' and therefore the development is likely to be Integrated Development and will require a Controlled Activity Approval from NRAR under s91 of the WM Act 2000.

Under the new Koala State Environmental Planning Policy (SEPP) commencing on 1 March 2020, the Tier 1 assessment concluded that there will be direct impacts to Koala habitat on the Koala. As such a Koala Habitat Assessment is required as part of this DA.

No obstruction of fish passage or dredging or reclamation occurs is expected as part of the proposed works. Therefore, a permit is not considered necessary.

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Appendix A : Species identified within the study area

FLORA

Scientific Name	Common Name	Exotic (*)	Priority	WoNS
Acacia mearnsii	Black Wattle			
Agapanthus praecox	Blue Lily	*		
Amyema sp.				
Asparagus aethiopicus	Ground Asparagus	*		*
Asparagus asparagoides	Bridal Creeper			*
Centella asiatica	Indian Pennywort			
Cirsium vulgare	Spear Thistle	*		
Cynodon dactylon	Common Couch	*		
Dianella caerulea	Blue Flax-lily			
Dichondra repens	Kidney Weed			
Ehrharta erecta	Panic Veldtgrass	*		
Einadia sp.				
Entolasia stricta	Wiry Panic			
Eucalyptus cypellocarpa	Mountain Grey Gum			
Eucalyptus piperita	Sydney Peppermint			
Eucalyptus quadrangulata	White-topped Box			
Eucalyptus radiata	Narrow-leaved Peppermint			
Exocarpos stricta	Dwarf Cherry			
Geranium solanderi	Native Germanium			
Glycine clandestina	Twining glycine			
Glycine tabacina				
Hardenbergia violacea	False Sarsaparilla			
Hedera helix	English Ivy	*		
Hypochaeris radicata	Catsear	*		
Juncus sp.		*		
Ligustrum lucidum	Large-leaved Privet	*		
Ligustrum sinense	Small-leaved Privet	*		
Lomandra filiformis	Wattle Mat-rush			
Lomandra longifolia	Spiny-headed Mat-rush			
Lomandra multiflora subsp. *multiflora*	Many-flowered Mat-rush			
Ludwigia sp.		*		
Lysimachia arvensis	Scarlet pimpernel	*		

Scientific Name	Common Name	Exotic (*)	Priority	WoNS
Medicago sp.		*		
Melaleuca linariifolia	Narrow-leaved Paperbark			
Microlaena stipoides	Weeping Grass			
Oxalis perennans				
Paspalum sp.		*		
Pennisetum clandestinum	Kikuyu Grass	*		
Pinus sp.		*		
Pittosporum undulatum	Sweet Pittosporum			
Plantago lanceolata	Lamb's Tongues	*		
Poa sp.				
Rubis fruticosus aggregate	Blackberry	*	*	*
Rumex crispus	Curly Dock			
Salix sp.	Willow			
Sida rhombifolia	Paddy's Lucerne	*		
Stellaris media	Chickweed	*		
Taraxacum officinale		*		
Typha orientalis	Bullrush			
Veronica plebeia	Trailing Speedwell			
Vicia sativa	Vetch	*		
Vulpia sp.		*		
Yucca sp.		*		

FAUNA

Fauna Group	Scientific name	Common name	Exotic
Megabats	*Pteropus poliocephalus*	Grey-headed Flying-fox	
Birds	*Cacatua galerita*	Sulphur-crested Cockatoo	
	Cacatua sanguinea	Little Corella	
	Chenonetta jubata	Australian Wood Duck	
	Columba livia	Rock Dove	*
	Cracticus tibicen	Australian Magpie	
	Grallina cyanoleuca	Magpie Lark	
	Manorina melanocephala	Noisy Myna	
	Platycercus eximius	Eastern Rosella	
	Platycercus eximius	Eastern Rozella	
	Psophodes olivaceus	Eastern Whipbird	
	Rhipidura albiscapa	Grey Fantail	
	Rhipidura leucophrys	Willie Wagtail	

Appendix B : Likelihood of Occurrence

An assessment of likelihood of occurrence was made for threatened and migratory species identified from the database search. Five terms for the likelihood of occurrence of species are used in this report. This assessment was based on database or other records, presence or absence of suitable habitat, features of the proposal site, results of the site inspection and professional judgement. Some Migratory or Marine species identified from the Commonwealth database search have been excluded from the assessment, due to lack of habitat. The terms for likelihood of occurrence are defined below:

- "known" = the species was or has been observed on the site
- "likely" = a medium to high probability that a species uses the site
- "potential" = suitable habitat for a species occurs on the site, but there is insufficient information to categorise the species as likely to occur, or unlikely to occur
- "unlikely" = a very low to low probability that a species uses the site
- "no" = habitat on site and in the vicinity is unsuitable for the species.

A test of significance was conducted for threatened species or ecological communities that were recorded within the study area or had a higher likelihood of occurring and were not recorded during the site visit. It is noted that some threatened fauna species that are highly mobile, wide ranging and vagrant may use portions of the study area intermittently for foraging. For these fauna species, the habitat present and likely to be impacted is not considered to be important to the threatened species, particularly in relation to the amount of similar habitat remaining in the surrounding landscape. As such, a test of significance in reference to State or Commonwealth legislation was not considered necessary.

The records column refers to the number of records occurring within 5 km of the study area, as provided by the Atlas of NSW Wildlife (BioNet) and Protected Matters Search Tool database search.

Information provided in the habitat associations' column has primarily been extracted (and modified) from the Commonwealth Species Profile and Threats Database and the NSW Threatened Species Profiles.

Table 12: Likelihood of occurrence for threatened ecological communities

Scientific name	BC Act Status	EPBC Act Status	Distribution and Habitat	Likelihood of Occurrence	Impact Assessment Required
Coastal Upland Swamps in the Sydney Basin Bioregion	EEC	EEC	Occur primarily on impermeable sandstone plateaux with shallow groundwater aquifers in the headwaters and impeded drainage lines of streams, and on sandstone benches with abundant seepage moisture. Generally associated with acidic soils.	No – not identified within the study area	No
Robertson Rainforest in the Sydney Basin Bioregion	EEC	CEEC	Occurs almost exclusively on highly fertile soils derived from basalt and basanite. Appears to be restricted to the Robertson Basalt; no observations of the community have been recorded on the surrounding Wianamatta Shale. Found at altitudes of between 500 to 700 metres. Warm or cool temperate rainforest with a generally dense structure. It is dominated by *Quintinia sieberi* (Possumwood), *Polyosma cunninghamii* (Featherwood), *Doryphora sassafras* (Sassafras) and *Acacia melanoxylon* (Blackwood). Common shrub species include *Hymenanthera dentata* (Tree Violet), *Coprosma quadrifida* (Prickly Coprosma) and *Tasmannia insipida* (Brush Pepperbush).	No – not identified within the study area	No
Southern Highlands Shale Woodland of the Sydney Basin Bioregion	CEEC	CEEC	Occurs at the edges of the Cumberland Plain, where clay soils from the shale rock intergrade with earthy and sandy soils from sandstone, or where shale caps overlay sandstone. The boundaries are indistinct, and the species composition varies depending on the soil influences. It typically occurs in moderately wet sites, with an annual rainfall of 800-1100mm per year, and on clay soils derived from Wianamatta shale. The tree canopy is dominated by Turpentine and a variety of eucalypt species. Its distribution is mainly on the Cumberland Plain of the Sydney region.	No – not identified within the study area	No

Scientific name	BC Act Status	EPBC Act Status	Distribution and Habitat	Likelihood of Occurrence	Impact Assessment Required
Southern Highlands Shale Forest and Woodland in the Sydney Basin Bioregion	**EEC**	**CEEC**	**The community may exist as tall open forest, grassy woodland or scrub; though it originally existed as woodland. The dominant canopy species vary but common species throughout much of the community's range are *Eucalyptus cypellocarpa* (Mountain Grey Gum), *E. piperita* (Sydney Peppermint), *E. ovata* (Swamp Gum), *E. radiata* (Narrow-leafed Peppermint) and *E. globoidea* (White Stringybark). The shrub layer is usually open, though there may be denser patches of shrubs in some areas. Typical species in the north-eastern parts of the distribution of the community include *Oxylobium ilicifolium, Melaleuca thymifolia* and *Olearia microphylla,* while in south-western areas these species are rare or absent and *Daviesia ulicifolia* may be locally common). The groundlayer is dominated by native grasses such as *Themeda australis, Austrostipa rudis, Microlaena stipoides* and *Austrodanthonia* species. Common herb species include *Gonocarpus tetragynus, Veronica plebeia, Hypericum gramineum, Poranthera microphylla* and *Viola hederacea.***	**Yes – this TEC has been previously mapped within the study area as PCT944**	**Yes – impacts to this community as part of the proposed redevelopment.**
Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion	-	EEC	Typically occurs as an open to tall open forest with a sparse to dense layer of shrubs and vines, and a diverse understorey of native grasses, forbs, twiners and ferns. Dominant canopy species are most often *Eucalyptus fastigata* (brown barrel), *E. viminalis* (ribbon gum) and *E. radiata* subsp. *radiata* (narrow-leaved peppermint). *Eucalyptus obliqua* (messmate stringybark), *E. elata* (river peppermint), *E. quadrangulate* (white-topped box) and *E. smithii (*ironbark peppermint) are also common. *Eucalyptus oreades* (Blue Mountains ash) and *E. blaxlandii* (Blaxland's stringybark) are prevalent in the Blue Mountains forms. *Eucalyptus cypellocarpa* (mountain grey gum) is widespread in drier sites, while *E. piperita* (Sydney peppermint) and *Eucalyptus ovata* (swamp gum) may also be present. *Acacia melanoxylon*(blackwood) is a common subcanopy tree. Occasional rainforest trees such as *Doryphora sassafras* (sassafras) and *Hedycarya angustifolia* (native mulberry) may also occur.	No – not identified within the study area	No
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	EEC	CEEC	Open woodland community (sometimes occurring as a forest formation), in which the most obvious species are one or more of the following: *Eucalyptus albens* (White Box), *E. melliodora* (Yellow Box) and *E. blakelyi* (Blakely's Red Gum). Intact sites contain a high diversity of plant species, including the main tree species, additional tree species, some shrub species, several climbing plant species, many grasses and a very high diversity of herbs.	No – not identified within the study area	No

CEEC = CRITICALLY ENDANGERED ECOLOGICAL COMMUNITY, EEC = ENDANGERED ECOLOGICAL COMMUNITY

Table 13: Likelihood of occurrence for threatened flora species

Scientific name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Number of Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Acacia bynoeana	Bynoe's Wattle	E1	V	Found in central eastern NSW, from the Hunter District (Morisset) south to the Southern Highlands and west to the Blue Mountains. Heath or dry sclerophyll forest on sandy soils.	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area
Acacia pubescens	Downy Wattle	V	V	Restricted to the Sydney region around the Bankstown-Fairfield-Rookwood and Pitt Town area, with outliers occurring at Barden Ridge, Oakdale and Mountain Lagoon. Open woodland and forest, including Cooks River/Castlereagh Ironbark Forest, Shale/Gravel Transition Forest and Cumberland Plain Woodland. Occurs on alluviums, shales and at the intergrade between shales and sandstones.	3	Unlikely – suitable habitat for this species was not identified on site	No – species not identified within the study area
Boronia deanei	Deane's Boronia	V	V	Grows in wet heath, often at the margins of open forest adjoining swamps or along streams. Also found in drier open forest on poorly drained peat soils over granite or sandstone	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area
Caladenia tessellata	Thick-lipped Spider-orchid	E	V	The Thick Lip Spider Orchid is known from the Sydney area (old records), Wyong, Ulladulla and Braidwood in NSW. Populations in Kiama and Queanbeyan are presumed extinct. It was also recorded in the Huskisson area in the 1930s. The species occurs on the coast in Victoria from east of Melbourne to almost the NSW border. Generally found in grassy sclerophyll woodland on clay loam or sandy soils, though the population near Braidwood is in low woodland with stony soil.	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area

Scientific name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Number of Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Commersonia prostrata	Dwarf Kerrawang	E	E	Occurs on sandy, sometimes peaty soils in a wide variety of habitats: Snow Gum (*Eucalyptus pauciflora*) Woodland and Ephemeral Wetland floor at Rowes Lagoon; Blue leaved Stringybark (*E. agglomerata*) Open Forest at Tallong; and in Brittle Gum (*E. mannifera*) Low Open Woodland at Penrose; Scribbly Gum (*E. haemastoma*)/ Swamp Mahogany (*E. robusta*) Ecotonal Forest at Tomago	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area
Cryptostylis hunteriana	Leafless Tongue-orchid	V	V	*Cryptostylis hunteriana* is known from a range of vegetation communities including swamp-heath and woodland. The larger populations typically occur in woodland dominated by Scribbly Gum (*Eucalyptus sclerophylla*), Silvertop Ash (*E. sieberi*), Red Bloodwood (*Corymbia gummifera*) and Black Sheoak (*Allocasuarina littoralis*); where it appears to prefer open areas in the understorey of this community and is often found in association with the Large Tongue Orchid (*C. subulata*) and the Tartan Tongue Orchid (*C. erecta*). Occurs in Coastal Plains	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area
Cynanchum elegans	White-flowered Wax Plant	E1	E	*Asterolasia elegans* is restricted to a few localities on the NSW Central Coast north of Sydney, in the Baulkham Hills, Hawkesbury and Hornsby LGAs. It is found in sheltered forests on mid- to lower slopes and valleys, in or adjacent to gullies.	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area
Eucalyptus aggregata	Black Gum	V	V	Grows on alluvial soils, on cold, poorly-drained flats and hollows adjacent to creeks and small rivers. Often grows with other cold-adapted eucalypts, such as Snow Gum or White Sallee (*Eucalyptus pauciflora*), Manna or Ribbon Gum (*E. viminalis*), Candlebark (*E. rubida*), Black Sallee (*E. stellulata*) and Swamp Gum (*E. ovata*). Black Gum usually occurs in an open woodland formation with a grassy groundlayer dominated either by River Tussock (*Poa*	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area

Scientific name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Number of Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
				labillardierei) or Kangaroo Grass (*Themeda australis*), but with few shrubs.			
Eucalyptus macarthurii	Camden Woollybutt	E1	E	From the Moss Vale District to Kanangra Boyd National Park. Grassy woodland on relatively fertile soils on broad cold flats.	173	Unlikely – suitable habitat for this species was not identified on site	No – species not identified within the study area
Genoplesium baueri	Yellow Gnat-orchid	E1	E	Has been recorded from locations between Nowra and Pittwater and may occur as far north as Port Stephens. Dry sclerophyll forest and moss gardens over sandstone.	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area
Grevillea raybrownii	-	V	-	Generally occurs on ridgetops and, less often, slopes and benches of Hawkesbury Sandstone and Mittagong Formation. It occurs in Eucalyptus open forest and woodland with a shrubby understorey on sandy, gravelly loam soils derived from sandstone that are low in nutrients	10	Unlikely – suitable habitat for this species was not identified on site	No – species not identified within the study area
Haloragis exalata subsp. *exalata*	Wingless Raspwort	V	V	Disjunct distribution in the Central Coast, South Coast and North Western Slopes botanical subdivisions of NSW. Found in protected and shaded damp situations in riparian habitats.	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area
Kunzea cambagei	Cambage Kunzea	V	V	Restricted to damp, sandy soils in wet heath or mallee open scrub at higher altitudes on sandstone outcrops or Silurian group sediments.	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area
Genoplesium baueri	Bauer's Midge Orchid	E1	E	Has been recorded from locations between Nowra and Pittwater and may occur as far north as Port Stephens. Dry sclerophyll forest and moss gardens over sandstone.	0	No – no suitable habitat in the study area and lack of	No – species not identified within the study area

Scientific name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Number of Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
						records in the locality	
Persicaria elatior	Knotweed	V	V	Beside streams and lakes, swamp forest or disturbed areas.	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area
Persoonia acerosa	Needle Geebung	V	V	The Needle Geebung has been recorded only on the central coast and in the Blue Mountains, from Mt Tomah in the north to as far south as Hill Top where it is now believed to be extinct. Mainly in the Katoomba/ Wentworth Falls/ Springwood area. The Needle Geebung occurs in dry sclerophyll forest, scrubby low-woodland and heath on low fertility soils	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area
Persoonia glaucescens	Mittagong Geebung	E1	E	Woodland to dry sclerophyll forest on clayey and gravely laterite.	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area
Persoonia hirsuta	Hairy Geebung	E1	E	*Persoonia hirsuta* occurs from Singleton in the north, south to Bargo and the Blue Mountains to the west. It grows in dry sclerophyll eucalypt woodland and forest on sandstone. Flowers November to January.	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area
Phyllota humifusa	Dwarf Phyllota	V	V	In dry sclerophyll forest on sandy shale soils; restricted to the southern Blue Mtns.	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area

Scientific name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Number of Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Pomaderris brunnea	Brown Pomaderris	E1	V	Brown Pomaderris is found in a very limited area around the Colo, Nepean and Hawkesbury Rivers, including the Bargo area and near Camden. It also occurs near Walcha on the New England tablelands and in far eastern Gippsland in Victoria. Brown Pomaderris grows in moist woodland or forest on clay and alluvial soils of flood plains and creek lines. Flowers appear in September and October. The species is expected to live for 10 - 20 years, while the minimum time to produce seed is estimated to be 4 - 6 years. The species has been found in association with *Eucalyptus amplifolia*, *Angophora floribunda*, *Acacia parramattensis*, *Bursaria spinosa* and *Kunzea ambigua*.	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area
Pomaderris cotoneaster	Cotoneaster Pomaderris	E	E	*Cotoneaster Pomaderris* has been recorded in a range of habitats in predominantly forested country. The habitats include forest with deep, friable soil, amongst rock beside a creek, on rocky forested slopes and in steep gullies between sandstone cliffs	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area
Prasophyllum fuscum	Wingecarribee Leek Orchid	CE	V	Grows in moist heath, often along seepage lines. The known population grows in moist sandy soil over sandstone amongst sedges and grasses in an area that appears to be regularly slashed by the local council.	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area
Thelymitra kangaloonica	Kangaloon Sun Orchid	CE	CE	It is found in swamps in sedgelands over grey silty grey loam soils. It is thought to be a short-lived perennial, flowering in late October and early November	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area

Scientific name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Number of Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Helichrysum calvertianum		V	-	Grows on or near rock outcrops and platforms (mainly Hawkesbury Sandstone) in dry sclerophyll forest and associated mallee and heath. Restricted to the Southern Highlands region between Joadja, Belanglo, Canyonleigh, Penrose, Fitzroy Falls, Mt Gibraltar (presumed extinct), and Berrima.	14	Unlikely – suitable habitat for this species was not identified on site	No – species not identified within the study area
Pterostylis ventricosa		E4A	-	Predominantly in more open areas of tall coastal eucalypt forest often dominated by one or more of the following tree species:- Turpentine, Spotted Gum, Grey Ironbark, Blackbutt, White Stringybark, Scribbly Gum and Sydney Peppermint. Often favours more open areas such as along powerline easements and on road verges where the tree overstorey has been removed or thinned. Grows in a range of groundcover types, including moderately dense low heath, open sedges and grasses, leaf litter, and mosses on outcropping rock. Small moss gardens are a commonly associated micro-habitat feature in most habitats. Soil type ranges from moisture-retentive grey silty loams to grey sandy loams. Sometimes found in skeletal soils on sandstone rock shelves.	1	Unlikely – suitable habitat for this species was not identified on site	No – species not identified within the study area
Persoonia glaucescens	Mittagong Geebung	E1	V	The Mittagong Geebung grows in woodland to dry sclerophyll forest on clayey and gravely laterite. The preferred topography is ridge-tops, plateaux and upper slopes. Aspect does not appear to be a significant factor. Within its habitat, *P. glaucescens* is generally rare and the populations are linear and fragmented. Under ideal circumstances, the species can be locally common, though such conditions are very rare	296	Unlikely – suitable habitat for this species was not identified on site	No – species not identified within the study area

Scientific name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Number of Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Persoonia mollis subsp. *revoluta*	-	V	-	Mainly on relatively deep sandy soils on broad ridgetops and upper slopes. Frequently on Hawkesbury Sandstone on Soapy Flat or Sandy Flat soil landscapes	4	Unlikely – suitable habitat for this species was not identified on site	No – species not identified within the study area
Thesium australe	Austral Toadflax	V	V	In eastern NSW it is found in very small populations scattered along the coast, and from the Northern to Southern Tablelands. Grassland on coastal headlands or grassland and grassy woodland away from the coast.	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area
Xerochrysum palustre	Swamp Everlasting	-	V	Grows in swamps and bogs which are often dominated by heaths.	0	No – no suitable habitat in the study area and lack of records in the locality	No – species not identified within the study area

BC ACT STATUS:X – EXTINCT, CE = CRITICALLY ENDANGERED; E = ENDANGERED; E1 = ENDANGERED; E2 = ENDANGERED POPULATION; EPBC ACT STATUS: CE = CRITICALLY ENDANGERED, E = ENDANGERED, V = VULNERABLE.

Table 14: Likelihood of occurrence for threatened fauna

Scientific name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Number of Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Actitis hypoleucos	Common Sandpiper	-	M	Summer migrant. In NSW, widespread along coastline and also occurs in many areas inland. Coastal wetlands and some inland wetlands, especially muddy margins or rocky shores. Also, estuaries and deltas, lakes, pools, billabongs, reservoirs, dams and claypans, mangroves.	0	No – no suitable habitat in the study area and lack of records in the locality	No
Anthochaera phrygia	Regent Honeyeater	E4A	CE	Inland slopes of south-east Australia, and less frequently in coastal areas. In NSW, most records are from the North-West Plains, North-West and South-West Slopes, Northern Tablelands, Central Tablelands and Southern Tablelands regions; also recorded in the Central Coast and Hunter Valley regions. Eucalypt woodland and open forest, wooded farmland and urban areas with mature eucalypts, and riparian forests of *Casuarina cunninghamiana* (River Oak).	0	No – no suitable habitat in the study area and lack of records in the locality	No
Apus pacificus	Fork-tailed Swift	-	M	Recorded in all regions of NSW. Riparian woodland., swamps, low scrub, heathland, saltmarsh, grassland, Spinifex sandplains, open farmland and inland and coastal sand-dunes.	0	No – no suitable habitat in the study area and lack of records in the locality	No
Botaurus poiciloptilus	Australasian Bittern	E1	E	Found over most of NSW except for the far north-west. Permanent freshwater wetlands with tall, dense vegetation, particularly Typha spp. (bullrushes) and Eleocharis spp. (spikerushes).	0	No – no suitable habitat in the study area and lack of records in the locality	No
Calidris acuminata	Sharp-tailed Sandpiper	-	M	Summer migrant. Widespread in most regions of NSW, especially in coastal areas, but sparse in the south-central Western Plain and east Lower Western Regions. Shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation.	0	No – no suitable habitat in the study area and lack of records in the locality	No

Scientific name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Number of Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Calidris ferruginea	Curlew Sandpiper	E1	CE, M	Occurs along the entire coast of NSW, and sometimes in freshwater wetlands in the Murray-Darling Basin. Littoral and estuarine habitats, including intertidal mudflats, non-tidal swamps, lakes and lagoons on the coast and sometimes inland.	0	Unlikely – lack of suitable habitat in the study area… Lack of records within the locality.	No – impacts minimal for this highly mobile species
Calidris melanotos	Pectoral Sandpiper	-	M	Shallow fresh to saline wetlands, including coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands.	0	No – no suitable habitat in the study area and lack of records in the locality	No
Callocephalon fimbriatum	Gang-gang Cockatoo	V	-	Forest and woodland, urban fringes.	27	Potential – this species may forage intermittently within the study area.	No – Impacts are considered minimal for this highly mobile species.
Calyptorhynchus lathami	Glossy Black-Cockatoo	V	-	Open forest and woodlands of the coast and the Great Dividing Range where stands of Sheoak occur.	20	Potential – this species may forage intermittently within the study area.	No – Impacts are considered minimal for this highly mobile species.
Cercartetus nanus	Eastern Pygmy-possum	V	-	Rainforest, sclerophyll forest (including Box-Ironbark), woodland and heath.	1	Potential – records of this species recorded approximately 400 m west of the study area.	No – Impacts are considered minimal for this highly mobile species.
Chalinolobus dwyeri	Large-eared Pied Bat	V	V	Recorded from Rockhampton in Qld south to Ulladulla in NSW. Largest concentrations of populations occur in the sandstone escarpments of the Sydney basin and the NSW north-west slopes. Wet and dry sclerophyll forests, Cyprus Pine dominated forest, woodland, sub-alpine woodland, edges of rainforests and sandstone outcrop country.	0	No – no suitable habitat in the study area and lack of records in the locality	No

Scientific name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Number of Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Cuculus optatus	Oriental Cuckoo	-	M	Non-breeding habitat: monsoonal rainforest, vine thickets, wet sclerophyll forest or open casuarina, acacia or eucalyptus woodland.	0	No – no suitable habitat in the study area and lack of records in the locality	No
Daphoenositta chrysoptera	Varied Sittella	V	-	Inhabits eucalypt forests and woodlands, mallee and *Acacia* woodland.	8	Potential – this species may forage intermittently within the study area.	No – Impacts are considered minimal for this highly mobile species.
Dasyornis brachypterus	Eastern Bristlebird	E1	E	Central and southern populations inhabit heath and open woodland with a heathy understorey. In northern NSW, habitat comprises open forest with dense tussocky grass understorey.	0	No – no suitable habitat in the study area and lack of records in the locality	No
Dasyurus maculatus maculatus	Spotted-tailed Quoll	V	E	Found on the east coast of NSW, Tasmania, eastern Victoria and north-eastern Qld. Rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline.	2	Unlikely – lack of suitable habitat in the study area	No – Impacts are considered minimal for this highly mobile species.
Falsistrellus tasmaniensis	**Eastern False Pipistrelle**	**V**	**-**	**South-east coast and ranges of Australia, from southern Qld to Victoria and Tasmania. In NSW, records extend to the western slopes of the Great Dividing Range. Tall (greater than 20m) moist habitats. Generally, roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings.**	**4**	**Potential – suitable roosting and foraging habitat identified within the study area**	**Yes - impact to foraging habitat within the study area (See Appendix C)**
Gallinago hardwickii	Latham's Snipe	-	M	Migrant to east coast of Australia, extending inland west of the Great Dividing Range in NSW. Freshwater, saline or brackish wetlands up to 2000 m above sea-level; usually freshwater swamps, flooded grasslands or heathlands.	2	Unlikely – lack of suitable habitat in the study area	No – impacts are considered minimal for this highly mobile species

Scientific name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Number of Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Petaurus australis	Yellow-bellied Glider	V	-	Tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils.	1	Unlikely – lack of suitable habitat in the study area	No – Impacts are considered minimal for this highly mobile species.
Petaurus norfolcensis	Squirrel Glider	V	-	Mature or old growth Box, Box-Ironbark woodlands and River Red Gum forest west of the Great Dividing Range and Blackbutt-Bloodwood forest with heath understorey in coastal areas.	2	Unlikely – lack of suitable habitat in the study area	No – Impacts are considered minimal for this highly mobile species.
Grantiella picta	Painted Honeyeater	V	V	Widely distributed in NSW, predominantly on the inland side of the Great Dividing Range but avoiding arid areas. Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests.	0	No – no suitable habitat in the study area and lack of records in the locality	No
Heleioporus australiacus	Giant Burrowing Frog	V	V	South eastern NSW and Victoria, in two distinct populations: a northern population in the sandstone geology of the Sydney Basin as far south as Ulladulla, and a southern population occurring from north of Narooma through to Walhalla, Victoria. Heath, woodland and open dry sclerophyll forest on a variety of soil types except those that are clay based.	0	No – no suitable habitat in the study area and lack of records in the locality	No
Hieraaetus morphnoides	Little Eagle	V	-	Throughout the Australian mainland, with the exception of the most densely forested parts of the Dividing Range escarpment. Open eucalypt forest, woodland or open woodland, including sheoak or Acacia woodlands and riparian woodlands of interior NSW.	2	Unlikely – lack of suitable habitat in the study area	No – Impacts are considered minimal for this highly mobile species.
Hirundapus caudacutus	White-throated Needletail	-	M	All coastal regions of NSW, inland to the western slopes and inland plains of the Great Divide. Occur most often over open forest and rainforest, as well as heathland, and remnant vegetation in farmland.	2	Unlikely – lack of suitable habitat in the study area	No – Impacts are considered minimal for this highly mobile species.

Scientific name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Number of Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Hoplocephalus bungaroides	Broad-headed Snake	E1	V	Dry and wet sclerophyll forests, riverine forests, coastal heath swamps, rocky outcrops, heaths, grassy woodlands.	0	No – no suitable habitat in the study area and lack of records in the locality	No
Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	E1	E	Heath or open forest with a heathy understorey on sandy or friable soils.	0	No – no suitable habitat in the study area and lack of records in the locality	No
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V	-	Woodlands and dry open sclerophyll forest, usually eucalypts and mallee associations. Also have recordings in shrub and heathlands and various modified habitats, including regenerating forests. In western NSW, this species is primarily associated with River Red Gum/Black Box/Coolabah open forest/woodland and associated with larger river/creek systems.	3	Potential – suitable foraging habitat identified within the study area.	No – Impacts are considered minimal for this highly mobile species.
Petroica boodang	Scarlet Robin	V	-	Dry eucalypt forests and woodlands, and occasionally in mallee, wet forest, wetlands and tea-tree swamps.	3	Unlikely – lack of suitable habitat in the study area	No – Impacts are considered minimal for this highly mobile species.
Petroica phoenicea	Flame Robin	V	-	Breeds in upland tall moist eucalypt forests and woodlands. In winter uses dry forests, open woodlands, heathlands, pastures and native grasslands. Occasionally occurs in temperate rainforest, herbfields, heathlands, shrublands and sedgelands at high altitudes.	2	Potential – this species may forage intermittently within the study area. Records of this species recorded approximately 300 m south of the study area in the same vegetation community.	No – Impacts are considered minimal for this highly mobile species.

Scientific name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Number of Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Lathamus discolor	Swift Parrot	E1	CE; M	Migrates from Tasmania to mainland in Autumn-Winter. In NSW, the species mostly occurs on the coast and south west slopes. Box-ironbark forests and woodlands.	0	No – no suitable habitat in the study area and lack of records in the locality	No
Litoria littlejohni	Littlejohn's Tree Frog	V	V	Breeding habitat is the upper reaches of permanent streams and perched swamps. Non-breeding habitat is heath-based forests and woodlands	0	No – no suitable habitat in the study area and lack of records in the locality	No
Macquaria australasica	Macquarie Perch	E1	E	River and lake habitats, especially the upper reaches of rivers and their tributaries.	0	Unlikely – no records of this species within the locality	No – no fish obstruction is expected as part of the proposed works.
Miniopterus australis	Little Bent-winged Bat	V	-	Moist eucalypt forest, rainforest, vine thicket, wet and dry sclerophyll forest, Melaleuca swamps, dense coastal forests and banksia scrub.	0	Unlikely – suitable foraging habitat not recorded within the study area.	No
Miniopterus orianae oceanensis	**Large Bent-winged Bat**	**V**	**-**	**Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures. Form discrete populations centred on a maternity cave that is used annually in spring and summer for the birth and rearing of young. Maternity caves have very specific temperature and humidity regimes. At other times of the year, populations disperse within about 300 km range of maternity caves. Cold caves are used for hibernation in southern Australia. Breeding or roosting colonies can number from 100 to 150,000 individuals. Hunt in forested areas, catching moths and other flying insects above the tree tops.**	**5**	**Potential – suitable winter roosting and foraging habitat identified within the study area**	**Yes - potential impact to foraging and winter roosting habitat within the study area (See Appendix C)**

Scientific name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Number of Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Mixophyes balbus	Stuttering Frog	E1	V	Rainforest and wet, tall open forest in the foothills and escarpment on the eastern side of the Great Dividing Range.	0	No – no suitable habitat in the study area and lack of records in the locality	No
Monarcha melanopsis	Black-faced Monarch	-	M	In NSW, occurs around the eastern slopes and tablelands of the Great Divide, inland to Coutts Crossing, Armidale, Widden Valley, Wollemi National Park and Wombeyan Caves. It is rarely recorded farther inland. Rainforest, open eucalypt forests, dry sclerophyll forests and woodlands, gullies in mountain areas or coastal foothills, Brigalow scrub, coastal scrub, mangroves, parks and gardens.	0	No – no suitable habitat in the study area and lack of records in the locality	No
Motacilla flava	Yellow Wagtail	-	M	Regular summer migrant to mostly coastal Australia. In NSW recorded Sydney to Newcastle, the Hawkesbury and inland in the Bogan LGA. Swamp margins, sewage ponds, saltmarshes, playing fields, airfields, ploughed land, lawns.	0	No – no suitable habitat in the study area and lack of records in the locality	No
Myiagra cyanoleuca	Satin Flycatcher	-	M	In NSW, widespread on and east of the Great Divide and sparsely scattered on the western slopes, with very occasional records on the western plains. Eucalypt-dominated forests, especially near wetlands watercourses, and heavily vegetated gullies.	0	No – no suitable habitat in the study area and lack of records in the locality	No
Ninox connivens	Barking Owl	V	-	Woodland and open forest, including fragmented remnants and partly cleared farmland, wetland and riverine forest.	1	Potential – this species may forage intermittently within the study area.	No – Impacts are considered minimal for this highly mobile species.
Ninox strenua	Powerful Owl	V	-	Woodland, open sclerophyll forest, tall open wet forest and rainforest.	8	Potential – this species may forage intermittently within the study area.	No – Impacts are considered minimal for this highly mobile species.

Scientific name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Number of Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Numenius madagascariensis	Eastern Curlew	-	CE, M	Summer migrant to Australia. Primarily coastal distribution in NSW, with some scattered inland records. Estuaries, bays, harbours, inlets and coastal lagoons, intertidal mudflats or sandflats, ocean beaches, coral reefs, rock platforms, saltmarsh, mangroves, freshwater/brackish lakes, saltworks and sewage farms.	0	No – no suitable habitat in the study area and lack of records in the locality	No
Petauroides volans	Greater Glider	-	V	In Eastern Australia, it is found from the Windsor Tableland in north Queensland through to central Victoria (Wombat State Forest). Eucalypt forests and woodlands. It is typically found in highest abundance in taller, montane, moist eucalypt forests with relatively old trees and abundant hollows.	19	Potential – records of this species recorded approximately 400 m west of the study area.	No – Impacts are considered minimal for this highly mobile species.
Petauroides volans	Greater Glider population in the Mount Gibraltar Reserve area	E2	V	Eucalypt forests and woodlands.	3	Unlikely - lack of suitable breeding habitat in the study area	No – Impacts are considered minimal for this highly mobile species.
Petrogale penicillata	Brush-tailed Rock-wallaby	E1	V	In NSW they occur from the Qld border in the north to the Shoalhaven in the south, with the population in the Warrumbungle Ranges being the western limit. Rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges.	0	No – no suitable habitat in the study area and lack of records in the locality	No
Phascolarctos cinereus	Koala	V	V	In NSW it mainly occurs on the central and north coasts with some populations in the west of the Great Dividing Range. There are several sites on the southern tablelands in eucalypt woodlands and forests.	103	Unlikely - Habitat present is substantially degraded such that this species is unlikely to utilise the site for foraging or breeding	No – Impacts will be minimal and addressed with mitigation measures.

Scientific name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Number of Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Potorous tridactylus tridactylus	Long-nosed Potoroo	V	V	Coastal heaths and dry and wet sclerophyll forests.	0	No – no suitable habitat in the study area and lack of records in the locality	No
Pteropus poliocephalus	**Grey-headed Flying-fox**	**V**	**V**	**Along the eastern coast of Australia, from Bundaberg in Qld to Melbourne in Victoria. Subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.**	**42**	**Yes – small camp present within the centre of the study area.**	**Yes impact to exotic vegetation within the study area (See Appendix C and Appendix D)**
Rhipidura rufifrons	Rufous Fantail	-	M	Coastal and near coastal districts of northern and eastern Australia, including on and east of the Great Divide in NSW. Wet sclerophyll forests, subtropical and temperate rainforests. Sometimes drier sclerophyll forests and woodlands.	0	No – no suitable habitat in the study area and lack of records in the locality	No
Rostratula australis	Australian Painted-snipe	E1	E	In NSW most records are from the Murray-Darling Basin. Other recent records include wetlands on the Hawkesbury River and the Clarence and lower Hunter Valleys. Swamps, dams and nearby marshy areas.	0	Unlikely – lack of suitable habitat in the study area and lack of records in the locality	No
Scoteanax rueppellii	**Greater Broad-nosed Bat**	**V**	**-**	**Both sides of the great divide, from the Atherton Tableland in Qld to north-eastern Victoria, mainly along river systems and gullies. In NSW it is widespread on the New England Tablelands. Woodland, moist and dry eucalypt forest and rainforest.**	**3**	**Potential – suitable roosting and foraging habitat identified within the study area**	**Yes - potential impact to foraging and winter roosting habitat within the study area (See Appendix C)**
Tringa nebularia	Common Greenshank	-	M	Summer migrant to Australia. Recorded in most coastal regions of NSW; also, widespread west of the Great Dividing Range, especially between the Lachlan and Murray Rivers and the Darling River drainage basin,	0	Unlikely – lack of suitable habitat in the study area and lack of records in the locality	No

Scientific name	Common Name	BC Act Status	EPBC Act Status	Distribution and Habitat	Number of Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
				including the Macquarie Marshes, and north-west regions. Terrestrial wetlands (swamps, lakes, dams, rivers, creeks, billabongs, waterholes and inundated floodplains, claypans, saltflats, sewage farms and saltworks dams, inundated rice crops and bores) and sheltered coastal habitats (mudflats, saltmarsh, mangroves, embayments, harbours, river estuaries, deltas, lagoons, tidal pools, rock-flats and rock platforms).			
Tyto novaehollandiae	Masked Owl	V	-	Often hunts along the edges of forests, including roadsides. The typical diet consists of tree-dwelling and ground mammals, especially rats. Pairs have a large home-range of 500 to 1000 hectares. Roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting.	1	Potential – this species may forage intermittently within the study area.	No – Impacts are considered minimal for this highly mobile species.

BC ACT STATUS:X – EXTINCT, CE = CRITICALLY ENDANGERED; E = ENDANGERED; E1 = ENDANGERED; E2 = ENDANGERED POPULATION; EPBC ACT STATUS: CE = CRITICALLY ENDANGERED, E = ENDANGERED, V = VULNERABLE, M = MIGRATORY

Appendix C : Tests of Significance (BC Act)

The 'assessment of significance' (5-part test) is applied to species, populations and ecological communities listed on Schedules 1 and 2 of the BC Act and Schedules 4, 4A and 5 of the FM Act. The assessment sets out 5 factors, which when considered, allow proponents to undertake a qualitative analysis of the likely impacts of an action and to determine whether a significant impact is likely. All factors must be considered, and an overall conclusion made based on all factors in combination.

Threatened species, populations and ecological communities to be assessed under the BC Act, which have potential to occur within the study area or may be indirectly impacted are:

THREATENED ECOLOGICAL COMMUNITIES

- Southern Hinterland Shale Woodland

THREATENED FAUNA

Megachiropteran Bats

- *Pteropus poliocephalus* (Grey-headed Flying Fox)

Microchiropteran Bats

- *Falsistrellus tasmaniensis* (Eastern False Pipistrelle)
- *Miniopterus orianae oceanensis* (Large Bent-winged Bat)
- *Scoteanax rueppellii* (Greater Broad-nosed Bat)

The likelihood table reflects a precautionary approach in identifying species that may occasionally utilise the study area. However, for the purposes of the application of 5-part tests and based on the current footprint, only those species or their habitats that may be directly or indirectly impacted have been considered.

Due to similar habitat requirements and foraging resources, some species have been assessed in groups, with specific information for individual species highlighted where relevant. The species assessed in groups are; Microchiropteran bats (Eastern False Pipistrelle, Large Bent-wined Bat, and Greater Broad-nosed bat).

C1 Southern Highlands Shale Woodland

The Southern Highlands Shale Forest and Woodland has a tree canopy dominated by eucalypts and a typically herbaceous understorey. It shows some variation in structure and composition in different locations due to differences in: rainfall, topographic shelter, exposure, the influence of cold air drainage and ponding; and the influences of groundwater and proximate geologies across the distribution of the ecological community. In addition, extensive clearing, grazing, logging, weed invasion, altered fire regimes and changed hydrological patterns have also resulted in variation in form. Reflecting this variation, three 'forms' of the ecological community are recognised: 'typical', 'tall wet' and 'short dry'.

The 'typical' form occurs in areas of more moderate rainfall and can be further differentiated into three variants: Penrose; Braemar; and Bundanoon ridges and exposed slopes. The 'tall wet' form typically occurs in areas with higher rainfall, soil moisture and fertility, and in areas of sheltered topography. In areas of lower rainfall, more frost and, in some cases more exposed locations, a 'short dry' form of the ecological community occurs.

The tall wet form of Southern Highlands Shale Woodland was mapped within the study area.

BC Act	Question	Response
7.3.1 a)	In the case of a threatened species: whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction	Not applicable.
7.3.1 b) i	In the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity: Is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or	The local occurrence of SHSW is approximately 42.8 ha (Figure 15) The local occurrence of SHSW is fragmented by roads, urban development, residential housing, roads and; however, a large, connected patch of SHSW exists adjacent to the south of the study area. The proposed works result in the removal of approximately 0.1 ha of SHSW. The SHSW that occurs within the site that will be impacted is in a moderate to good condition. The community on site comprises scattered remnant Eucalypt trees, an absent midstorey and contains a mix of native and exotic herbs and grasses in the ground layer. Given the removal of vegetation is small (approximately 0.1 ha) and that the condition of the SHSW on site has been previously modified, it is unlikely that the proposal would place the local occurrence of SHSW at risk of extinction
7.3.1 b) ii	In the case of an endangered ecological community or critically endangered ecological community: Whether the proposed development or activity is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.	The proposed vegetation clearance consists of SHSW in a moderate to good condition. The SHSW contains remnant native canopy trees, an absent native midstorey and an understorey of native and exotic grasses. Given the modified nature of the community, it is unlikely that the removal of a small amount of vegetation and the mowing of understorey vegetation would adversely modify the composition of the

BC Act	Question	Response
		community such that it would place the local occurrence of SHSW at risk of extinction.
7.3.1 c) i	In relation to the habitat of a threatened species or ecological community: The extent to which habitat is likely to be removed or modified as a result of the proposed development or activity	The proposed works will result in the removal of 0.1 ha of SHSW. The habitat to be impacted has undergone previous disturbances as is considered in moderate condition to good condition, particularly compared to the less disturbed vegetation in the surrounding landscape.
7.3.1 c) ii	In relation to the habitat of a threatened species or ecological community: Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity	A small amount of native vegetation will be removed as part of the proposed works; however the majority of native canopy trees will be retained within the site and connectivity will exist between these trees and the contiguous patch of SHSW to the south of the study area. It is unlikely that the activity will fragment or isolate areas of this ecological community.
7.3.1 c) iii	In relation to the habitat of a threatened species or ecological community: The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	The impact on vegetation is unlikely to impact upon the long-term survival of this ecological community in the locality as the activity will not significantly affect the long-term viability, tenure, quality and integrity of the habitat within the locality. The vegetation that will be i impacted is minimal (0.1 ha) in comparison with that remaining unaffected in the study area and surrounding landscape.
7.3.1 d)	Whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly).	The activity would not directly or indirectly effect any declared area of outstanding biodiversity value identified by the Office of Environment and Heritage.
7.3.1 e)	Whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	A number of Key Threatening Processes (KTP) are relevant to this proposal with respect to Cumberland Plain Woodland. These include: • clearing of native vegetation • invasion of native plant communities by exotic perennial grasses The area of potential habitat to be impacted is small (0.1 ha) and consists of native canopy and a mixed native and exotic understorey. Given that: • additional areas of the community would be retained within the study area • SHSW is likely to exist adjacent to the study area and in the locality and • mitigation measures will be implemented to reduce the spread of weeds It is unlikely that the proposal would exacerbate any key threatening processes to such an extent that they would place any local occurrences of SHSW at risk of extinction.

BC Act	Question	Response
Conclusion	Is there likely to be a significant impact?	the proposed development is unlikely to significantly impact upon Southern Highlands Shale Woodland given that: • the area to be impacted is relatively small in size (approximately 0.1 ha) • the vegetation has previously modified • the proposal will not further fragment of isolate this ecological community from other patches of Cumberland Plain Woodland. On the basis of the above considerations, it is unlikely that the proposed development will result in a significant effect on Cumberland Plain Woodland.

C2 *Pteropus poliocephalus* (Grey-headed Flying-fox)

Pteropus poliocephalus (Grey-headed Flying-fox, GHFF) utilises a wide variety of habitats (including disturbed areas) for foraging and are recorded as travelling long distances on feeding forays (Churchill 1998). Fruits and flowering plants of a wide variety of species are the main food source. The species roosts in large 'camps' of up to 200,000 individuals. Camps are usually formed close to water and along gullies however the species has been known to form camps in urban areas (Churchill 1998).

During the site inspection in January 2024, an estimated 50-75 individual GHFF were observed roosting within the central portion of the site along the riparian corridor. The Commonwealth DCCEEW National Flying Fox Monitor viewer shows that a GHFF camp was present and with a recorded number of between 1-499 individuals in February 2017. No counts have been provided at this camp since 2017. During a site inspection undertaken in October 2019 no trees within the site were occupied with individuals. The GHFF mate in early Autumn and give birth around October. After mating, larger camps tend to break up to accommodate for sparser food resources. This smaller camp may be a breakaway camp from a larger camp and is utilised once breeding is complete.

No targeted fly in or fly out surveys have been conducted for this species, however based on aerial imagery, there are large tracks of vegetation which follow along the Nattai river and extent to the north within Nattai Gorge. It is probable that that the large expanses of native vegetation through Nattai Gorge are providing a substantial foraging resource for this species.

BC Act	Question	Response
7.3.1 a)	In the case of a threatened species: whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction	Impacts likely to have an adverse effect on the lifecycle of these species includes the loss or degradation of significant areas of forest and woodland habitat. GHFF mate in early autumn and give birth around October. Survey undertaken in October 2019 did not identify any occupied GHFF breeding camps. Subsequent survey in January of 2024 identified an occupied camp. No juvenile individuals were noted during the survey. It is potential that this smaller camp is the result of a larger camp splitting up for foraging

BC Act	Question	Response
		resources after the breeding at another breeding camp has completed. The proposed works do not involve the removal of any of the occupied trees within the camp area of the GHFF and only a small amount of foraging and sheltering habitat (0.1 ha) will be removed as part of the proposed works. Given that these species are highly mobile and there is well connected vegetation outside of the study area it is unlikely that It is unlikely the removal of 0.1 ha of vegetation for foraging and sheltering would cause a decline in resources that would significantly disrupt the life cycle of these species such that a viable local population is placed at risk. Mitigation measures should be implemented to minimise any disruption to the camp via indirect impacts during any re-development of the buildings. With mitigation measures in place, it is unlikely that noise, light, or vibration would adversely affect the breeding of this species such that the local population would be at risk of extinction.
7.3.1 b) i	In the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity: Is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or	Not applicable
7.3.1 b) ii	In the case of an endangered ecological community or critically endangered ecological community: Whether the proposed development or activity is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.	Not applicable
7.3.1 c) i	In relation to the habitat of a threatened species or ecological community: The extent to which habitat is likely to be removed or modified as a result of the proposed development or activity	A small amount (0.1 ha) of potential foraging and sheltering habitat will be removed as part of the proposed works.
7.3.1 c) ii	In relation to the habitat of a threatened species or ecological community: Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity	The proposed works will remove a small amount (0.1 ha) of vegetation which is potential foraging and sheltering habitat for this species. No roosting habitat will be removed or modified as part of the proposed works and given that other canopy trees will be retained within the study area works will not fragment or isolate any areas of habitat for these species as a result of the proposal. Given the highly mobile nature of these species and that the connectivity of the surrounding vegetation would be

BC Act	Question	Response
		maintained, it is unlikely that an area of habitat will become fragmented or isolated from other area of habitat.
7.3.1 c) iii	In relation to the habitat of a threatened species or ecological community: The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	The proposed works will remove a small amount (0.1 ha) of vegetation which is potential foraging and sheltering habitat for this species. The vegetation within the study area is important to the foraging and sheltering resources for this species. However, counts of the individuals at the study area have fluctuated over several years. The national Flying Fox Monitor Viewer recorded a small camp in 2017. Other years have not provided a count of individuals at the site. In 2019 no camp occupied the study area during the breeding season. A small camp was occupied the study area at the end of the breeding season in 2024. Based on the current information collected about the camp, the study area appears to be an occasional foraging, and sheltering resource for the species and may be of some important to local population.
7.3.1 d)	Whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly).	The proposal will not result in the clearing of vegetation within an area identified as land with high biodiversity value, as defined by the *Biodiversity Conservation Regulation 2017*.
7.3.1 e)	Whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	The proposed action does not constitute and is not part of a key threatening process (KTP) and will not result in the operation or increase in the impact of a KTP.
Conclusion	**Is there likely to be a significant impact?**	The vegetation within the study area provides an important foraging and sheltering resource for this species, as it is evident that the camp fluctuates with numbers from year to year. The camp sometimes is no not being occupied, and other years contains a small number of individuals. As the camp is not permanently occupied, it is likely that the camp has splintered from a larger maternity camp within the locality. A small amount (0.1 ha) of vegetation would be removed for the re-development. The vegetation proposed for removal does not include the trees which were identified as being occupied during the survey. The small amount of vegetation to be removed within the study area is unlikely to remove foraging resources which would adversely affect the life cycle of this species. As there are large tracts of available foraging habitat available (based on aerial imagery) within Nattai Creek and extending to Gorge, it is likely that this species could shelter and forage within the greater area. Indirect impacts such as noise, light, vibration may have a negative impact on this species when the camp is

BC Act	Question	Response
		occupied. Mitigation measures in the form of a Grey-headed Flying-fix Management Plan should be adopted to minimise any adverse impacts on this species during construction and post-construction of the study area. Following consideration of the above, it is unlikely that the proposal would cause the extinction of a local population of GHFF. As such, a Biodiversity Development Assessment report is not required for the proposed works.

C3 Microchiropteran Bats

Due to similar habitat requirements and associated impacts, a single 5-part test has been undertaken for the following microchiropteran bats:

- *Falsistrellus tasmaniensis* (Eastern False Pipistrelle)
- *Miniopterus orianae oceanensis* (Large Bent-winged Bat)
- *Scoteanax rueppellii* (Greater Broad-nosed Bat).

The **Eastern False Pipistrelle** is wide-ranging, occurring along the southeast coast of Australia with records from South East Queensland, New South Wales, Victoria and Tasmania. The species occurs in sclerophyll forests from the Great Dividing Range to the coast, and generally prefers wet habitats where trees are more than 20 m high. Roosting occurs in hollow trunks of eucalypt trees, usually in single sex colonies, but the species has been recorded roosting in caves, under loose bark and occasionally in old wooden buildings (Churchill 1998). Their flight pattern is high and fast, and they forage within or just below the tree canopy. They feed on a variety of prey including moths, rove beetles, weevils, plant bugs, flies and ants. The Eastern False Pipistrelle was not recorded during the survey however, there is 1 record located approximately 640 m to the east of the study area and potential habitat exists in the form of hollow-bearing trees within the study area. No hollow-bearing trees with be removed as part of the proposed works, and therefore only the loss of potential foraging habitat has been assessed for this species.

The **Large Bent-winged Bat** is listed as a vulnerable species under Schedule 1 of the BC Act. This species occupies a range of forested environments (including wet and dry sclerophyll forests), along the coastal portion of eastern Australia, and through the Northern Territory and Kimberley area (subject to subdivision of this species).

This species has a fast, level flight exhibiting swift shallow dives. It forages from just above the tree canopy, to many times the canopy height in forested areas, and will utilise open areas where it is known to forage at lower levels. Moths appear to be the main dietary component. This highly mobile species is capable of large regional movements in relation to seasonal differences in reproductive behaviour and winter hibernation. Though individuals often use numerous roosts, it congregates in large numbers at a small number of nursery caves to breed and hibernate. Although roosting primarily occurs in caves, it has also been recorded in mines, culverts, stormwater channels, buildings, and occasionally tree-hollows. This species occupies a number of roosts within specific territorial ranges usually within 300 km of the maternity cave and may travel large distances between roost sites.

Large Bent-winged Bat was not recorded during the field survey; however, recent records have been located approximately 640 m to the east of the study area and potential winter roosting habitat has been identified as the derelict building structures within the study area. As the buildings will be redeveloped the loss of foraging habitat and winter roosting habitat have been assessed for this species. No breeding habitat will be impacted on for this species.

The **Greater Broad-nosed Bat** is a large bat that feeds on moths and other large insects along edges of forest, cleared paddocks and tree-lined water courses. This species uses mostly tree hollows for roosting but has been known to roost in buildings when no suitable tree roosting habitat is available.

Greater Broad-nosed Bat was not recorded during the field survey; however, recent records have been located approximately 800 m to the west of the study area and potential winter roosting habitat has been identified as the derelict building structures within the study area. As the buildings will be redeveloped the loss of foraging habitat and winter roosting habitat have been assessed for this species. No breeding habitat will be impacted on for this species.

BC Act	Question	Response
7.3.1 a)	In the case of a threatened species: whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction	Whilst these species were not recorded in the study area, there is potential foraging and winter roosting habitat available within the study area.
7.3.1 b) i	In the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity: Is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or	Not applicable
7.3.1 b) ii	In the case of an endangered ecological community or critically endangered ecological community: Whether the proposed development or activity is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.	Not applicable.
7.3.1 c) i	In relation to the habitat of a threatened species or ecological community: The extent to which habitat is likely to be removed or modified as a result of the proposed development or activity	The proposal would remove up to 0.1 ha of native exotic vegetation that represents potential foraging habitat for these species. The proposed works will also result in the loss of winter roosting habitat for two of the species listed above. Large amounts of native vegetation are available within the study area and immediately adjacent to the study area to the south. Further, the removal of vegetation will predominantly occur in previously disturbed areas (minimal vegetation present within the lower stratum). There are 15 hollow-bearing trees on site. No removal of HBTs will be required for the proposed redevelopment of the site. The buildings on site are not considered breeding habitat for any of the species listed above. Therefore, given that it is unlikely that the foraging and roosting habitat to be removed would be considered important for this highly mobile species.

BC Act	Question	Response
7.3.1 c) ii	In relation to the habitat of a threatened species or ecological community: Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity	The proposed works would not fragment a patch of foraging habitat into two or more patches. The potential habitat to be removed would not result in the isolation of other foraging or breeding habitat for these species.
7.3.1 c) iii	In relation to the habitat of a threatened species or ecological community: The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	The proposal would remove 0.1 ha of potential foraging habitat for these species. The habitat being cleared for these species only represents potential foraging habitat and does not constitute roosting or breeding habitat. The redevelopment of the buildings would result in the loss of winter roosting habitat for two of the species listed above. However, the buildings are not considered to be breeding habitat for these species. Therefore, the proposed works are unlikely to affect breeding or feeding behaviours, and the habitat to be removed is unlikely to be important for this species. In addition, relatively large amounts of potential foraging, and roosting habitat is available immediately adjacent to the study area to east.
7.3.1 d)	Whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly).	No area of outstanding biodiversity values will be impacted.
7.3.1 e)	Whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	A key threatening process is defined under the BC Act as "a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, populations or ecological communities". Two Key Threatening Processes listed under Schedule 4 of the BC Act are relevant to the current proposal and may pose a threat to this species • Clearing of native vegetation • Removal of dead wood and dead trees Given this species is highly mobile, the small amount of native vegetation proposed for removal and the availability of foraging and roosting habitat throughout the study area and surrounds, it is considered unlikely that the proposal would significantly exacerbate these KTPs.
Conclusion	**Is there likely to be a significant impact?**	The proposal is unlikely to have a significant impact on the Microchiropteran species given that: • Clearance area is very small (up to 0.1 ha). • The proposal would not isolate habitat for these species. • All hollow-bearing trees providing roosting habitat will be retained on site.

BC Act	Question	Response
		• A large amount of potential habitat for these species would remain adjacent to the study area and is present throughout the locality. On the basis of the above considerations, it is unlikely that the proposal would result in a significant impact on the survival of these species. As such, a BDAR is not required.

Appendix D : EPBC Assessment

The EPBC Act Administrative Guidelines on Significance set out 'Significant Impact Criteria' that are to be used to assist in determining whether a proposed action is likely to have a significant impact on matters of national environmental significance. Matters listed under the EPBC Act as being of national environmental significance include:

- Listed threatened species and ecological communities
- Listed migratory species
- Wetlands of International Importance
- The Commonwealth marine environment
- World heritage properties
- National heritage places
- Nuclear actions.

Specific 'Significant Impact Criteria' are provided for each matter of national environmental significance except for threatened species and ecological communities in which case separate criteria are provided for species listed as critically endangered, endangered and vulnerable under the EPBC Act. The following applications of the Significant Impact Criteria assess the potential impacts of the proposed development.

D1 Southern Highlands Shale Woodland

CRITCRITICALLY ENDANGERED AND ENDANGERED ECOLOGICAL COMMUNITIES

Criterion	Question	Response
An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:		
1)	reduce the extent of an ecological community	The proposed action would involve removal of 0.1 ha of Southern Highlands Shale Woodland which occurs within a known larger patch of > 0.5 ha of the ecological community, and which is likely to occur within the surrounding landscape. The vegetation to be removed is located within the most disturbed portion of the study area. While the proposed action would involve clearing a small, disturbed area of the ecological community, given this area is less than 0.2% of the contiguous patch and is in an area which has previously been disturbed, the scale of this impact is minor.
2)	fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines	The location of the footprint would utilise cleared areas and small would also remove some single native species within this community. However, this would not fragmentation the vegetation from the remainder of the patch, as native vegetation would remain within the study area. Given the small area to be affected (0.1 ha), the scale of this impact is minor.
3)	adversely affect habitat critical to the survival of an ecological community	Habitat critical to the survival of the community would include areas necessary for the long-term maintenance of the ecological community. The small and relatively

Criterion	Question	Response
		disturbed area within the footprint is not considered critical to the survival of the ecological community particularly in the context of the larger patch of Southern Highlands Shale Woodland within the study area which would not be affected.
4)	modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns	The proposed action would not involve modification or destruction of abiotic factors necessary for the survival of Southern Highlands Shale Woodland. Erosion and sediment control measures will be established before work begins and maintained in effective working order throughout the duration of the works, and until the site has been stabilised to mitigate potential indirect impacts to soil and run-off by the proposed works.
5)	cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting	The proposed action would involve clearing and loss of the community across a small area (0.1 ha) which forms part of a greater than 0.5 ha patch of the ecological community. The proposed action would not have any impacts such as altered species composition or loss of functionally important species outside of the subject site. Weed species currently occur within the study site. Mitigation measures recommended to prevent further weed invasion and/or spread have been discussed within this report. They include washing down machinery before conducting works to limit weed spread or introduction of weed species and the implementation of a Vegetation Management Plan.
6) i	cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to: assisting invasive species, that are harmful to the listed ecological community, to become established, or	The proposed action would involve clearing and loss of the community across a small area (0.1 ha) which forms part of a greater than 0.5 ha patch of the ecological community. The proposed works are unlikely to assist invasive species becoming established as the subject site is already accessible, due to its location adjacent railway corridor. The proposed works would seek in improve the areas of SHSW by the implementation of a Vegetation Management Plan for the study area. Mitigation measures and actions would be provided within the VMP addressing how fertilisers, herbicides or other chemicals would be appropriately used within the site. The proposed action would not have any impacts involving the introduction of invasive species or pollutants outside of the subject site.
6) ii	cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to: causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community, or	As part of the proposed works landscaping would occur, which would increase the use of fertilisers and herbicides on site. However, herbicides within areas of SHSW would be appropriately used to manage the reduction of exotic species within the SHSW as part of a Vegetation Management Plan implemented on the site. It is likely that the appropriate use of herbicides within the SHSW would improve the integrity of this ecological community.
7)	interfere with the recovery of an ecological community.	The proposed action would involve clearing and loss of the community across a small area (0.1 ha) which forms part of

Criterion	Question	Response
		a greater than 0.5 ha patch of the ecological community. Given the relatively small scale of the impacts and that no impacts are proposed to adjacent areas of Southern Highlands Shale Woodland within the study area, the proposed action is considered unlikely to interfere with the recovery of the ecological community.
Conclusion	**Is there likely to be a significant impact?**	Based on the above assessment it is concluded that the proposal is unlikely to have a significant impact on Southern Highlands Shale Woodland.

D2 Listed threatened species: *Pteropus poliocephalus* (Grey-headed Flying Fox)

Pteropus poliocephalus (Grey-headed Flying-fox) is listed as a vulnerable species under the EPBC Act. This species inhabits a wide range of habitats including rainforest, mangroves, paperbark forests, wet and dry sclerophyll forests and cultivated areas (Churchill 1998). Camps are often located in gullies, typically close to water, in vegetation with a dense canopy (Churchill 1998).

During the site inspection in January 2024, an estimated 50-75 individual Grey-headed Flying Fox were observed roosting within the central portion of the site along the riparian corridor. The Commonwealth DCCEEW National Flying Fox Monitor viewer shows that a Grey-headed Flying Fox camp is recorded in the study area and numbered between 1-499 individuals in February 2017. No counts have been provided at this camp since 2017. During a site inspection undertaken in October 2019 no trees within the site were occupied with individuals. The GHFF mate in early Autumn and give birth around October. After mating, larger camps tend to break up to accommodate for sparser food resources. This smaller camp may be a breakaway camp from a larger camp and is utilised once breeding is complete.

No targeted fly in or fly out surveys have been conducted for this species, however based on aerial imagery, there are large tracks of vegetation which follow along the Nattai river and extent to the north within Nattai Gorge. It is probable that that the large expanses of native vegetation through Nattai Gorge are providing a substantial foraging resource for this species.

Criterion	Question	Response
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:		
1)	lead to a long-term decrease in the size of an important population of a species	The Matters of National Environmental Significance Impact Guidelines 1.1 (CoA 2013) defines an important population as a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are: • Key source populations either for breeding or dispersal • Populations that are necessary for maintaining genetic diversity, and/or • Populations that are near the limit of the species range

Criterion	Question	Response
		The GHFF is considered to represent just one population across Australia due to the constant exchange of genetic material between individuals and its movement between camps throughout its entire geographic range (DCCEEW 2021). The national Flying Fox Monitor Viewer recorded a small camp in 2017. Other years have not provided a count of individuals at the site. In 2019 no camp occupied the study area during the breeding season. A small camp was occupied in the study area at the end of the breeding season in 2024. The GHFF individuals present are part of the important population for the species. GHFF mate in early autumn and give birth around October. Survey undertaken in October 2019 did not identify any occupied GHFF breeding camps. Subsequent survey in January of 2024 identified an occupied camp. No juvenile individuals were noted during the survey. It is potential that this smaller camp is the result of a larger camp splitting up for foraging resources after the breeding at another breeding camp has completed. The proposed works do not involve the removal of any of the occupied trees within the camp area of the GHFF and only a small amount (0.1 ha) of potential foraging and sheltering habitat will be removed as part of the proposed works. However, given the camps proximity to the buildings (less than 30m) it is likely activities carried out during construction and post construction may cause a long-term decrease in the size of a population of GHFF.
2)	reduce the area of occupancy of an important population	The distribution of the GHFF extends from Bundaberg in Queensland to Melbourne, Victoria and from the coast inland to the western slopes of New South Wales. Given that no GHFF camps would be impacted as part of the proposed works and that these highly mobile species are able to forage and shelter in well-connected vegetation outside of the study area it is unlikely the proposal would reduce the area of occupancy of GHFF.
3)	fragment an existing important population into two or more populations	It is likely that the small camp recorded within the study area is a splinter camp from a larger camp of this population. As all GHFF are considered part of one larger important population, there is potential that the indirect impacts associated with the proposal during, and post construction may cause the existing population to further fragment into smaller camps. However, it is unlikely that the proposed works cause the important population to fragment into two or more populations.
4)	adversely affect habitat critical to the survival of a species	The draft recovery plan for GHFF (DECCW 2009) identifies foraging habitat that is critical to the survival of GHFF as follows: *Foraging habitat that meets at least one of the following criteria can be explicitly identified as habitat critical to*

Criterion	Question	Response
		survival, or essential habitat, for GHFF. Natural foraging habitat that is: *1. productive during winter and spring, when food bottlenecks have been identified* *2. known to support populations of > 30 000 individuals within an area of 50 km radius (the maximum foraging distance of an adult)* *3. productive during the final weeks of gestation, and during the weeks of birth, lactation and conception (September to May)* *4. productive during the final stages of fruit development and ripening in commercial crops affected by Grey-headed Flying-foxes (months vary between regions)* *5. known to support a continuously occupied camp.* The resources at the study area support foraging habitat for GHFF, and so are critical to the survival of the species.
5)	disrupt the breeding cycle of an important population	The GHFF camp may be indirectly disrupted during construction and post construction.
6)	modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No GHFF camps are proposed to be removed, a small amount (0.1 ha) of exotic vegetation which may be foraging habitat for the species would be removed as part of the proposed works. It is unlikely the direct removal of vegetation is minimal and unlikely to decrease foraging resources to the extent that the species is likely to decline. Canopy vegetation would remain within the study area and would not fragment, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline. Further, extensive foraging habitat exists in the region along Nattai Creek and Natti Gorge (based on ariel imagery) it is likely that the GHFF camp within the study area are from a larger camp within the region that would forage in the locality.
7)	result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	The study area is already disturbed and modified, and the proposed works will not result in the establishment of an invasive species that is harmful to the GHFF.
8)	introduce disease that may cause the species to decline, or	GHFFes are reservoirs for the Australian bat lyssavirus (ABL) and can cause clinical disease and mortality in GHFF (DECCW 2009a). The proposed works is unlikely to present a significant ecological stress on known individuals or camps utilizing the study area and therefore unlikely to affect this species. The proposed work would be unlikely to introduce a disease that may cause this species to decline.
9)	interfere substantially with the recovery of the species.	A Draft National Recovery Plan for the GHFF was developed in 2009. There is potential for the indirect impacts associated with the proposal to cause a decline of the population, which would interfere with the recovery of the

Criterion	Question	Response
		species. As this species is a vulnerable species, adverse impacts to the species could be considered substantial.
Conclusion	**Is there likely to be a significant impact?**	Based on the information provided above, the proposed works may result in the decline of a local population of GHFF, and therefore referral to the Commonwealth is recommended.

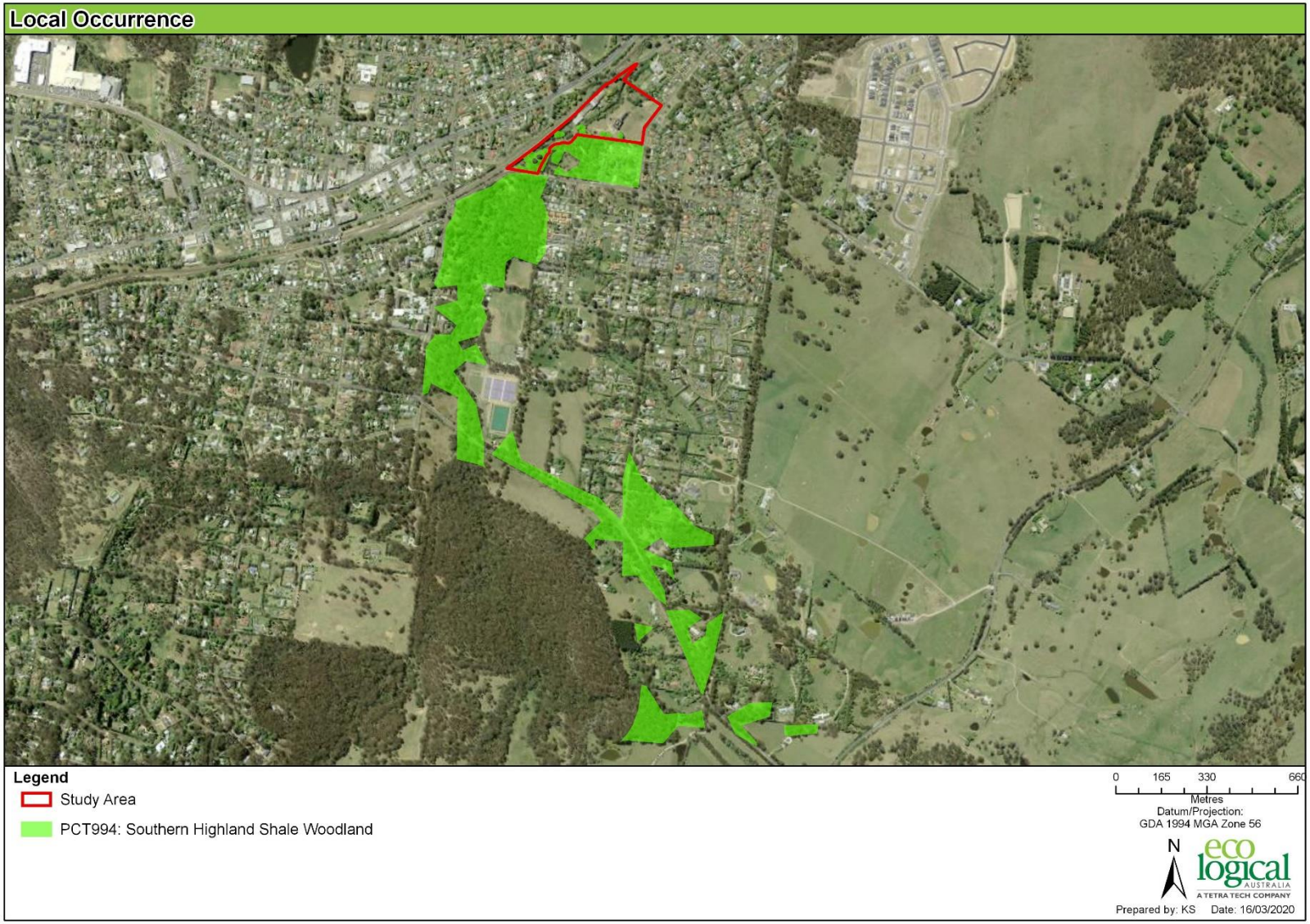

Figure 15: Local occurrence of Southern Highlands Shale Woodland (42.8 ha)

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